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PINEDALE

Resource Management Plan
Draft Environmental Impact Statement

DRAFT
RESOURCE MANAGEMENT PLAN/ ENVIRONMENTAL IMPACT STATEMENT FOR THE PINEDALE RESOURCE AREA

(Portions of Sublette and Lincoln Counties, Wyoming)

LEAD AGENCY: Bureau of Land Management, U.S. Department of the Interior

ABSTRACT: This draft Resource Management Plan/Environmental Impact Statement (RMP/EIS) addresses alternatives for managing approximately 931,000 surface acres of public land surface and 1,185,000 acres of federal mineral estate (approximately 917,000 acres encompass both federal surface and mineral estate) administered by the Bureau of Land Management, Pinedale Resource Area, Rock Springs District. The plan mainly addresses four resource management issues relating to minerals development and transportation network planning, land ownership adjustments, vegetation resources, and off-road vehicle and recreation uses.

When completed, the selected RMP will provide a comprehensive framework for managing and allocating resources on the public land in the Pinedale Resource Area. Further information regarding this draft RMP/EIS can be obtained from the address below. Comments will be accepted for 90 days following the date that the Environmental Protection Agency publishes the notice of filing of this draft in the *Federal Register*. Comments should be addressed to:

Team Leader
Pinedale RMP
Bureau of Land Management
P.O. Box 1869
Rock Springs, Wyoming 82902-1869

IN REPLY REFER TO:

March 3, 1849

United States Department of the Interior

Bureau of Land Management
Wyoming State Office
P.O. Box 1828
Cheyenne, Wyoming 82003

Dear Reader:

This Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS) outlines four alternative plans for managing the public lands in the Pinedale Resource Area. These alternatives were designed to resolve four land management issues that were identified during the planning process. The environmental consequences of the alternatives have also been analyzed.

Please review the document and direct any written comments to the Team Leader, Rock Springs District Office, P.O. Box 1869, Rock Springs, Wyoming 82902-1869. The comment period begins the day the notice of filing is published in the *Federal Register* by the Environmental Protection Agency and ends 90 days later.

Through your participation in this effort we may move forward together toward a common goal of improved public land management in the Pinedale Resource Area.

Sincerely,

Hillary A. Oden

Hillary A. Oden
Wyoming State Director

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ID 88025616

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DRAFT
RESOURCE MANAGEMENT PLAN/
ENVIRONMENTAL IMPACT STATEMENT

PINEDALE RESOURCE AREA

Prepared By:

U.S. Department of the Interior
Bureau of Land Management
1986

Hillary A. Oden
Wyoming State Director

11-19-86
Date

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SUMMARY

The draft Pinedale Resource Management Plan/ Environmental Impact Statement (RMP/EIS) addresses management options for approximately 931,000 acres of public surface and 1,185,000 acres of federal mineral estate (approximately 919,000 acres encompass both federal surface and mineral estate) administered by the Bureau of Land Management within the Pinedale Resource Area.

The resource area administrative boundary includes Sublette County and portions of Lincoln, Teton, and Fremont Counties. The RMP area (or planning area) includes Sublette County; a small portion of Lincoln County; and the towns of Pinedale, Big Piney, Marbleton, and LaBarge. Those federal lands under surface administration of other federal agencies (Forest Service, Park Service, etc.) are not addressed.

When completed, the selected RMP will provide management prescriptions for resources on public lands and the allocation of their uses. This RMP/EIS is designed primarily to resolve four issues by identifying areas that would be available or not compatible with surface-disturbing activities such as mineral development; transportation and rights-of-way needs; public lands suitable for disposal or retention; affects on vegetation resources; and provisions for off-road vehicles and recreation needs.

The issues are only one aspect of the planning process. Figure 1 illustrates the steps of the planning process.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Alternatives

Four alternatives are presented and analyzed in detail in this document. All the alternatives are multiple-use oriented. Each alternative provides for resource production and environmental protection. Table 1 presents a summary of the objectives and actions for the four alternatives.

The Preferred Alternative allows for resource use, with greater emphasis on the protection of the natural environment than Alternatives A or B. The preferred alternative consists of watershed and wildlife prescriptions from Alternative C, wild horse management prescriptions from Alternative B, and the remaining resource management prescriptions (such as mineral leasing, forest management, and livestock grazing) from Alternatives A, B, and C.

Alternative A is the continuation of current management, or “no action alternative.” With this alternative, the existing management and uses of the public lands and resources would continue at their present projected levels.

Alternative B emphasizes developing and using natural resources. Environmental protection is still provided for but the major emphasis is on resource development.

Alternative C emphasizes protection of the environment to a greater extent than Alternatives A or B. Resource development is still provided for but the major emphasis is on resource protection.

Environmental Consequences

A detailed summary of the environmental consequences of the alternatives is found in Table 2.

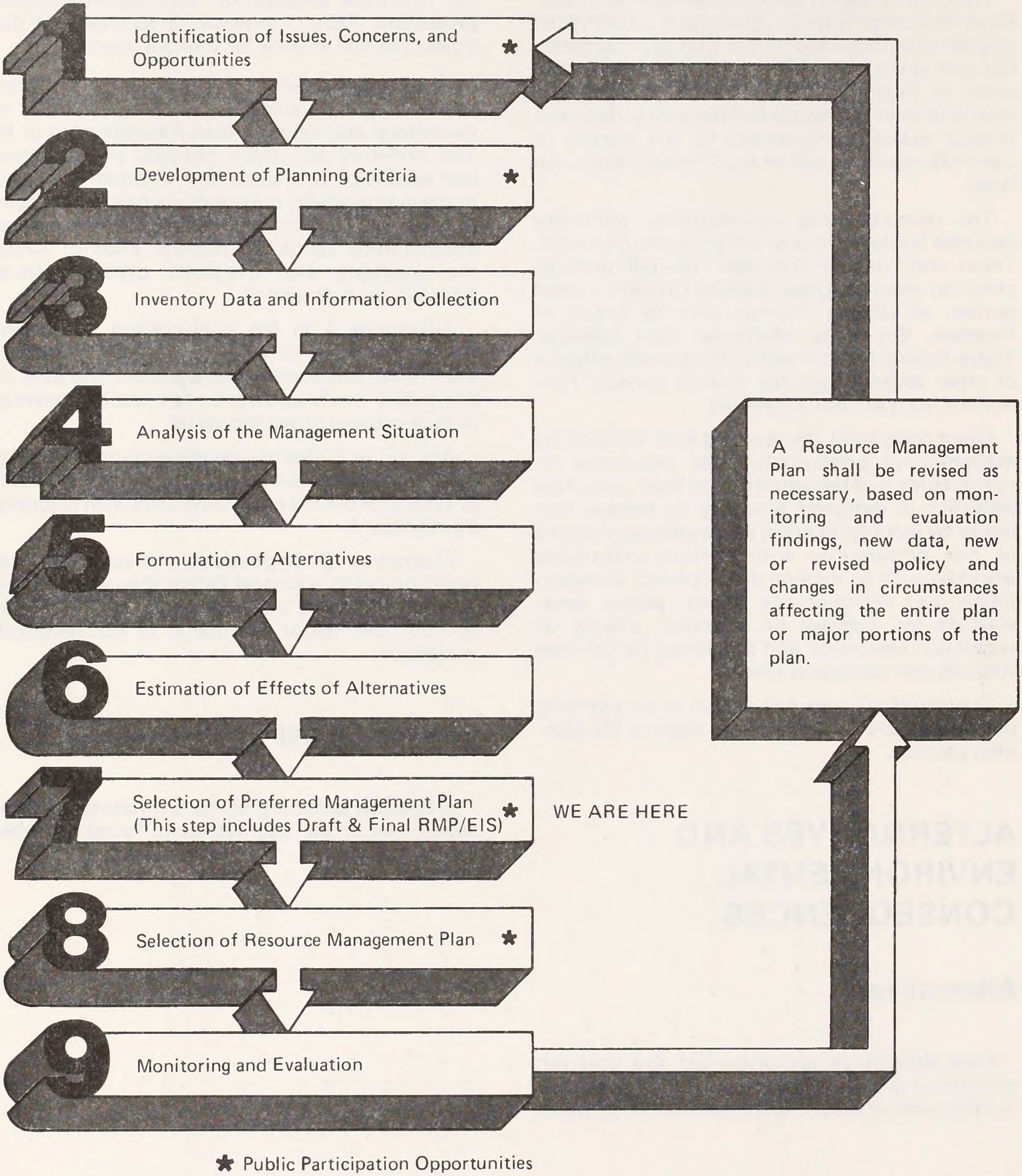

1 Identification of Issues, Concerns, and Opportunities *
2 Development of Planning Criteria *
3 Inventory Data and Information Collection
4 Analysis of the Management Situation
5 Formulation of Alternatives
6 Estimation of Effects of Alternatives
7 Selection of Preferred Management Plan (This step includes Draft & Final RMP/EIS) *
WE ARE HERE
8 Selection of Resource Management Plan *
9 Monitoring and Evaluation
A Resource Management Plan shall be revised as necessary, based on monitoring and evaluation findings, new data, new or revised policy and changes in circumstances affecting the entire plan or major portions of the plan.
* Public Participation Opportunities

Figure 1
PLANNING PROCESS

TABLE 1

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
SURFACE-DISTURBANCE RESTRICTIONS	No surface occupancy would be allowed on elk feedgrounds (approximately 20,720 acres).	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	No surface disturbance would be allowed from May 1 through June 30 in elk calving areas (approximately 56,080 acres).	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Approximately 9,400 acres surrounding sage grouse leks and 256,000 acres of nesting areas would be subject to Wyoming surface disturbance mitigation measures.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Seasonal restrictions would be applied to active raptor nests. A working inventory of the raptor nest locations would be maintained in the resource area and updated as necessary. Priority for such inventory would be given to areas where surface disturbing activities are proposed.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	With the exception of timber cutting, no surface disturbance would be allowed within 500 feet of riparian habitat, wetland, and(or) live water unless a high potential for successful rehabilitation exists or impacts would be temporary in nature.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
SURFACE- DISTURBANCE RESTRICTIONS (Continued)	No surface disturbance would be allowed on the Upper Green River special recreation management area (approximately 2,780 acres).	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	No surface disturbance would be allowed within one-quarter mile or the visual horizon (whichever is closer) of significant segments of historic trails (approximately 11,200 acres).	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Surface disturbances would not be allowed within one-quarter mile of developed and semi-developed recreation sites unless activities were determined to be compatible with recreation objectives for the area.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	No surface occupancy would be allowed on significant cultural sites and recreation sites (about 1,685 acres).	No surface disturbance within ¼ mile of significant cultural sites (about 1,100 acres). Restrict surface disturbance on recreation sites (about 585 acres).	Same as Alternative A	Same as Preferred Alternative
	427,810 acres of big game winter range (crucial and non crucial) would be subject to seasonal restrictions.	Approximately 398,170 acres of crucial big game winter range would be subject to seasonal restrictions.	Same as Alternative A	762,056 acres of big game winter range (crucial and non crucial) would be subject to seasonal restrictions.
	No surface occupancy would be allowed on about 16,000 contiguous acres to protect elk habitat and Colorado River cutthroat trout habitat in the area in and around the Rock Creek ACEC.	No surface occupancy would be allowed in the Rock Creek ACEC (about 5,264 acres).	Same as Alternative A	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
AIR QUALITY	OBJECTIVE: Air quality would be maintained or enhanced. Public health and safety would be protected. Emissions resulting in acid rain or degraded visibility would be minimized.	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative
	ACTIONS: Acid rain monitoring site would be maintained.	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	Same as Preferred Alternative
	Data would be collected and special requirements applied on a case-by-case basis to alleviate air quality problems.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Prescribed burning would be conducted so that ambient air quality standards would not be violated and other problems minimized.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
MINERALS MANAGEMENT	OBJECTIVE: Make public lands available for orderly and efficient development of mineral resources while ensuring compatibility with other resources and RMP objectives and guidelines.	OBJECTIVE: Make public lands available for orderly and efficient development while considering the goals and objectives of other resources.	OBJECTIVE: Make public lands available for orderly and efficient development of mineral resources with emphasis on maximizing mineral revenues and promoting development.	OBJECTIVE: Make public lands available for orderly and efficient development of mineral resources with emphasis on providing maximum protection and enhancement of the natural environment.
Oil and Gas	ACTIONS: All lands not specifically closed would be open to consideration for leasing, exploration, and development of oil and gas.	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative
	Valid existing rights would be honored; however, restrictions to protect other resources may be applied at the APD stage.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
MINERALS MANAGEMENT Oil and Gas (Continued)	Special measures may be required on a case-by-case basis to protect public health and safety (e.g., from accidental release of hydrogen sulfide).	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	About 7,636 acres in the Scab Creek Area would be closed to leasing. Approximately 16,000 acres in and around the Rock Creek ACEC would be open for leasing with a no surface occupancy stipulation to protect Colorado River cutthroat trout and crucial elk winter range. Maintenance of elk crucial winter range would have priority over oil and gas development.	About 19,160 acres would be closed to leasing.	About 7,636 acres would be closed to leasing.	About 7,636 acres in the Scab Creek Area would be closed to leasing. About 5,264 acres would be closed to leasing to protect Colorado River cutthroat trout habitat in the Rock Creek ACEC area. Approximately 10,000 acres adjacent to the ACEC would be withheld pending further study to determine leasing and development suitability.
Geophysical Exploration	About 7,636 acres would be closed to geophysical activities. The remainder of the planning area would be open to geophysical activities with appropriate surface disturbance restrictions.	About 19,160 acres would be closed to geophysical activity. The remainder of the area would be open to geophysical activities with appropriate surface disturbance restrictions.	Same as Preferred Alternative	About 7,636 acres in the Scab Creek area and 5,264 acre Rock Creek ACEC would be closed to geophysical activity. The remainder of the planning area would be open to geophysical activities with appropriate surface disturbance restrictions.
Coal	Coal exploration would be allowed under the guidance for surface-disturbing activities, and the RMP would be amended if needed to meet future demand.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

TABLE 1 (Continued)
SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
Other Leasable Minerals	With the exception of withdrawn areas, all of the resource area would be open to exploration and leasing, subject to surface-disturbance restrictions.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
Locatable Minerals	With the exception of withdrawn areas, all of the resource area would be open to mineral location.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
Salable Minerals	Salable permits would be processed on a case-by-case basis. Use of established common use areas would continue.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
NATURAL HISTORY AND PALEONTOLOGICAL RESOURCES	OBJECTIVE: Natural history and paleontological resource values would be protected.	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative
	ACTIONS: Paleontological resources would be managed according to their sensitivity level. Actions to close or restrict areas for fossil protection would be evaluated on a case-by-case basis.	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative
SOILS	OBJECTIVE: Soil productivity and stability would be maintained.	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative
	ACTIONS: Guidance for surface-disturbing activities would support soil conservation and erosion control.	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative

TABLE 1 (Continued)
SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
WATERSHED MANAGEMENT	OBJECTIVE: Maintain or enhance the quality of surface and ground water.	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative
	ACTIONS: Disturbance would be minimized in areas with highly saline soils, crucial watersheds, and ground water recharge zones.	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative
	Actions would comply with Executive Orders 11988 (Flood Plain Management) and 11990 (Protection of Wetlands).	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Prepare a watershed stabilization management plan for the Tip Top area (about 54 acres).	No new watershed actions would be proposed.	Same as Alternative A	Same as Preferred Alternative
	Prepare a watershed/recreation plan for the Stuart Point-Mount Airy area (about 10,560 acres).	No similar action	Same as Alternative A	Prepare a watershed/recreation plan for the Stuart Point-Mount Airy area (about 5,424 acres).
WILDLIFE MANAGEMENT	OBJECTIVE: Wildlife habitat would be managed to maintain wildlife populations at current Wyoming Game and Fish Dept. Strategic Plan levels.	OBJECTIVE: Maintain wildlife populations at current or slightly decreased levels.	Same as Alternative A	OBJECTIVE: Wildlife habitat would be managed to maintain wildlife populations at current Wyoming Game and Fish Dept. Strategic Plan levels or slightly increased levels.
	ACTIONS: Develop 15 water facilities.	ACTIONS: No water facilities would be developed.	ACTIONS: Same as Alternative A	ACTIONS: Same as Preferred Alternative
	Priority would be given to Colorado River cutthroat trout habitat.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Treat about 16,000 acres for wildlife habitat improvement.	Treat about 4,000 acres for wildlife habitat improvement.	Same as Preferred Alternative	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
WILDLIFE MANAGEMENT (Continued)	Threatened and endangered species and their habitat would be protected.	Same as Preferred Alternative	Same as Alternative A	
	Potential habitat for T&E species would continue to be inventoried. Management would include consideration for reoccupation.		Same as Preferred Alternative	Same as Preferred Alternative
	The East Front Aquatic Habitat Management Plan would be implemented to promote riparian habitat and to protect the Colorado River cutthroat trout.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Predator control would be coordinated with the U.S. Department of Agriculture.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
LIVESTOCK GRAZING MANAGEMENT AND VEGETATION	OBJECTIVE: Manage the forage resource to improve ecological range condition and to maintain or improve watershed, wildlife, and riparian areas while maintaining or increasing the amount of AUMs available for livestock grazing.	OBJECTIVE: Manage the forage resource to maintain stocking levels near current levels.	OBJECTIVE: Manage the forage resource to improve ecological range condition on areas with unacceptable range conditions, while maintaining the range condition on areas that are acceptable. Increase the amount of AUMs available for livestock grazing.	OBJECTIVE: Manage the forage resource to improve ecological range condition and to maintain or improve watershed, wildlife, riparian, and wild horse areas, while maintaining or increasing the amount of AUMs available for livestock grazing.
	Public lands would be made available for livestock grazing while considering the needs of other resources.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	ACTIONS: The amount of forage permitted for livestock would be up to 110,543 AUMs.	ACTIONS: The amount of forage permitted for livestock would decrease to 100,357 AUMs from 107,907 due to forage lost to wild horse use, Desert Land Entries, surface disturbance activities, and declining range condition.	ACTIONS: The amount of forage permitted for livestock would be up to 119,658 AUMs.	ACTIONS: The amount of forage permitted for livestock would be up to 109,343 AUMs.

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
LIVESTOCK GRAZING MANAGEMENT AND VEGETATION (Continued)	Modifications to grazing permitting would be based upon monitoring and consultation with permittees.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Any forage increases realized would be allocated to livestock grazing, wildlife, and watershed protection uses. Allocation would be approximately 50% to livestock and 50% to wildlife and watershed.	Any additional AUMs would not be allocated for livestock.	Any forage increases would be allocated to livestock grazing as first priority.	Any forage increases would be allocated to wildlife and watershed uses, and wild horses as first priority and secondly to livestock grazing.
	Allotment prescriptions to resolve conflicts would be developed through activity planning.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Implement AMPs on 40 "I" allotments and develop new AMPs to incorporate livestock, wildlife, and watershed objectives.	Continue to implement the 11 existing AMPs. Prepare no new AMPs.	Implement AMPs for 40 "I" allotments.	Implement AMPs for 40 "I" allotments to enhance wildlife habitat, wild horse forage, and watershed resources.
	Any new range improvements would be designed to meet grazing, wildlife, and watershed objectives. 21 water developments and 56 miles of fence would be constructed. Vegetation manipulation would be conducted on 98,552 acres. Livestock would be managed to improve riparian habitat.	Current range improvements would be maintained. No new range improvements would be proposed except to meet special needs.	Any new range improvements would be developed to benefit livestock grazing as a priority. 33 water developments and 58 miles of fence would be constructed. Vegetation manipulation would be conducted to enhance forage for livestock grazing. Up to 120,862 acres would be treated.	Same as Preferred Alternative
	A cost/benefit analysis would be considered in decisions on range improvements.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
LIVESTOCK GRAZING MANAGEMENT AND VEGETATION (Continued)	Minimize competition for forage by restricting seasons of livestock use and areas of use. Provide adequate forage for wintering wildlife.	Seasons of use would be designed mostly for livestock benefit.	Same as Alternative A	Same as Preferred Alternative
	Conversions would be evaluated on a case-by-case basis and restricted where sheep use would occur on crucial deer and antelope winter range.	Conversions would occur only after a study of suitability for conversion has been completed.	Same as Alternative A	Allow no conversions that would allow sheep use of crucial deer and antelope winter range.
	The 20,991 acres of unallotted public land would be allocated on a case-by-case basis. The AUMs in riparian areas would be allocated to wildlife and watershed uses.	2,396 AUMs on 20,991 acres of unallotted public lands would remain unlicensed for grazing.	2,396 AUMs on 20,991 acres of unallotted public lands would be licensed for grazing.	Same as Preferred Alternative
	All developed and semi-developed recreation sites would be closed to livestock grazing.	Livestock grazing would continue on all recreation sites.	Livestock grazing would not be allowed on developed recreation sites only.	Same as Preferred Alternative
	Provide adequate forage for wintering elk in the Bench Corral-Miller Mountain-Fort Hill-Graphite elk winter complex. Provide for good plant species diversity for wildlife spring/summer habitat.	No special consideration would be given to providing forage for wintering elk.	Same as Alternative A	Same as Preferred Alternative
	No salt blocks would be placed within 500 feet of live water, wetland, or riparian areas (to reduce streambank degradation).	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
WILD HORSE MANAGEMENT	OBJECTIVE: Resolve conflicts for water and forage between wild horses and other resource uses.	OBJECTIVE: Manage current wild horse use areas to maintain wild horse populations.	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative
	ACTIONS: Roundup and remove all wild horses in the LaBarge and Desert herd areas.	ACTIONS: Maintain existing herd status in the two herd areas.	ACTIONS: Same as Preferred Alternative	ACTIONS: Roundup and remove the wild horses in the LaBarge herd area. Manage for wild horses in the Desert Herd area only.
	No forage would be provided to support wild horses.	Provide forage to support 25 wild horses in the South Desert pasture of the Desert Common Allotment (300 AUMs) and to support 50 horses in the North LaBarge Common Allotment (600 AUMs).	Same as Preferred Alternative	Provide forage (1,200 AUMs) in the Desert Common and Reardon Canyon allotments to maintain 100 horses.
	No wild horse management plans would be maintained or developed.	Maintain the South Desert-Figure 4 management plan. Develop a management plan for the North LaBarge herd area.	Same as Preferred Alternative	Prepare a management plan for the Desert Herd wild horse area.
FOREST MANAGEMENT	OBJECTIVE: Manage the forest resource for production of forest products with emphasis on maintaining 1985 wildlife cover levels.	OBJECTIVE: Manage the forest resource to provide for the production of forest products in accordance with existing goals, objectives, and resource restrictions.	OBJECTIVE: Manage the forest resource to increase forest productivity.	OBJECTIVE: Same as Preferred Alternative
	ACTIONS: Harvesting, thinning, and reforestation activities would continue.	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative
	Sales of minor forest products would continue, except where excluded.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Timber access roads would be constructed to the minimum standard needed to safely remove the timber. When the roads would also be needed for other purposes, a higher road standard may be applied.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
FOREST MANAGEMENT (Continued)	Reforestation would be applied to logged or burned areas until regeneration would assure adequate stocking.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Aspen stand management would emphasize wildlife habitat.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	In the Scab Creek Area, the removal of forest products would be limited, clearcutting would not be allowed; and log removal away from roads would be limited to the use of horses or manpower on about 1,764 acres.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	About 5,310 acres of conifer and woodland would be available for intensive forest management.	About 34,401 acres of conifer and woodland would be available for intensive forest management.	About 36,430 acres of conifer and woodland would be available for intensive forest managment.	About 30,260 acres of conifer and woodland would be available for intensive forest management.
	About 32,419 acres of commercial conifer and woodland would be subject to restriction and 1,641 acres of conifer and woodland would be managed to benefit other resources. About 7,500 acres of conifer would not be available for forest management.	4,542 acres would be subject to restrictions. An additional 1,929 acres of forest land would be managed to enhance other resources and 5,998 acres would not be available for forest management activities.	About 2,910 acres would be subject to restrictions. 7,500 acres of conifer would not be available for forest management. 30 acres would be managed to benefit other resources.	About 3,331 acres would be subject to restrictions. 5,779 acres of conifer and woodland would be managed to benefit other resources. 7,500 acres of conifer would not be available for forest management.
	Harvest 18.2 mbf amd precommercially thin approximately 1,200 acres over a 20-year period.	Harvest 25 mbf and precommercially thin approximately 1,200 acres over a 20-year period.	Harvest 37.7 mbf and precommercially thin approximately 1,200 acres over a 20 year period.	Harvest 12.1 mbf and precommercially thin approximately 1,200 acres over a 20 year period.
	Any removal of commercial conifer in Categories 1 and 2 by other activities in high value wildlife areas may be considered part of the projected timber harvest levels.	No similar action.	Same as Alternative A	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
FOREST MANAGEMENT (Continued)	Clearcuts would not exceed 40 acres.	Utilize selective or partial cuts when justified. Clearcuts would not exceed 13 acres.	No more than a 10% reduction in forest cover would be allowed in the crucial zones surrounding the elk feedgrounds.	Same as Preferred Alternative
	Generally, clearcutting or equipment operations would not be allowed within 100 feet of riparian habitat, wetland and/or life water unless a high potential for successful rehabilitation exists or impacts would be temporary in nature.	Generally, clearcutting and equipment operations would not be allowed within 200 feet of riparian habitat, wetland and/or live water unless a high potiential for successful rehabilitation exists or impacts would be temporary in nature.	Same as Preferred Alternative	Same as Preferred Alternative
	Timber would be managed to maintain forest cover levels for wildlife where necessary. 90% of the conifer acreage in the graphite and Riley Ridge crucial elk winter ranges and most of the Miller Mountain area would be maintained.	Timber harvesting would be limited in crucial areas adjacent to elk feedgrounds.	Same as Alternative A	Timber would be managed to protect valuable thermal hiding cover adjacent to feedgrounds and at the fringes of crucial elk winter range. Maintain existing forage/cover ratios.
	Only sanitation and salvage timber harvesting that would benefit wildlife would be allowed in the Fort Hill-Fontenelle crucial elk winter range and in the Finnegan, North Piney and Franz elk feedgrounds.	Harvesting would be allowed and consideration given to wildlife values.	Same as Alternative A	Only sanitation and salvage timber harvesting that would benefit wildlife would be allowed in all crucial elk winter ranges and in the Finnegan, Morth Piney and Franz elk feedgrounds.

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
FOREST MANAGEMENT (Continued)	All forest lands (except in 7,636 acres of the Scab Creek area and in the 4,200 acre Rock Creek drainage) would be available for emergency salvage of damaged or dead timber. Timber harvesting would be prohibited in these Scab Creek and Rock Creek drainage areas.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Only emergency salvage would be allowed within the Scab Creek Campground.	Same as Preferred Alternative.	Same as Preferred Alternative	Same as Preferred Alternative
WILDERNESS	OBJECTIVE: Wilderness study areas would be managed in accordance with the decisions of Congress. Until Congress acts, they would be managed under the interim wilderness management policy.	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative
VISUAL RESOURCE MANAGEMENT (VRM)	OBJECTIVE: VRM classes would be lowered in some areas to facilitate development while the class in other areas would be raised to further protect visual resources.	OBJECTIVE: Visual resources would be managed to protect the characteristics of each VRM class.	OBJECTIVE: VRM would emphasize protection of only the most important visual values.	OBJECTIVE: VRM would be similar to Alternative A with the exception that some classes would be raised.
	ACTIONS: Modify visual classes after a more detailed inventory and evaluation.	ACTIONS: VRM areas would be managed in accordance with current area classifications.	ACTIONS: Ratings in some areas would be lowered from the classification described in Alternative A.	ACTIONS: Modification of established visual classes to a lower class rating would not be allowed.
	Improve visual quality in existing developed areas.	No similar actions.	Same as Alternative A	Same as Preferred Alternative

TABLE 1 (Continued)
SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
OFF-ROAD VEHICLE MANAGEMENT (ORV)	OBJECTIVE: Provide for ORV use while ensuring adequate protection for critical resources.	OBJECTIVE: Maintain the existing ORV designations. Establish ORV use areas as needed on a case-by-case basis.	OBJECTIVE: Existing ORV uses would be accommodated and additional use areas provided. Only the most important wildlife ranges and watershed areas would restrict ORV use.	OBJECTIVE: ORV use would be limited to provide protection for wildlife and watershed resources.
	ACTIONS: The following areas would have seasonal (11/15 through 4/30) ORV restrictions to protect wintering wildlife:	ACTIONS: The following areas would have seasonal (11/15 through 4/30) ORV restrictions to protect wintering wildlife:	ACTIONS: The following areas would have seasonal (11/15 through 4/30) ORV restrictions to protect wintering wildlife:	ACTIONS: The following areas would have seasonal (11/15 through 4/30) ORV restrictions to protect wintering wildlife:
	—Scab Creek elk feedground.	—Scab Creek elk feedground.	—Scab Creek elk feedground.	—Scab Creek elk feedground.
	—Fall Creek elk feedground.	—Fall Creek elk feedground.	—Fall Creek elk feedground.	—Fall Creek elk feedground.
	—Fort Hill-Miller Mountain and Graphite Hollow elk winter range complex.	—Fort Hill-Miller Mountain and Graphite Hollow elk winter range complex.	—Fort Hill-Miller Mountain and Graphite Hollow elk winter range complex.	—Fort Hill-Miller Mountain and Graphite Hollow elk winter range complex.
	—Natural elk winter range in the Bench Corral areas.	No similar actions.	Same as Preferred Alternative	—Natural elk winter range in the Bench Corral and Riley Ridge Cretaceous areas.
	—Lands around all elk feedgrounds.	No similar actions.	—Lands around Franz, feedgrounds.	Same as Preferred Alternative Finnegan, and North Piney
	—Lands adjacent to the Rock Creek ACEC would be designated as ORV-limited, restricting use to existing roads and trails except for over-the-snow vehicles.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	In the Deer Hills, Oil Field, and Mesa deer and antelope winter ranges, travel would be limited to plowed roads from 11/15 through 4/30.	No similar actions.	Same as Alternative A	In the Deer Hills, Oil field, Milleson Draw, Bray Draw, Mesa and Sand Springs deer and antelope winter ranges, travel would be limited from 11/15-4/30.

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
OFF-ROAD VEHICLE MANAGEMENT (ORV) (Continued)	120 acres of the Holden Hill area would be closed yearlong to all ORV use, including over-the-snow vehicles.	No similar actions.	Same as Alternative A	653 acres of the Holden Hill area would be closed yearlong to all ORV use, including over-the-snow vehicles.
	ORV open areas would be established adjacent to Pinedale and Big Piney, after a site-specific plan and analysis were completed.	No designated open areas would be provided.	ORV open areas would be established adjacent to Pinedale, Big Piney, and LaBarge.	The Mount Airy watershed area would be designated as limited to existing roads and trails, 4/1 - 5/15.
	The remainder of the planning area would be designated as limited to existing roads and trails except for over-the-snow vehicles.	No similar actions.	Same as Preferred Alternative	Same as Preferred Alternative
	Evaluate the Riley Ridge, Red Canyon, Castle Creek, and Fish Creek areas to determine areas in need of closures or road rehabilitation.	No evaluations would be conducted.	Same as Alternative A	Same as Alternative A
RECREATION MANAGEMENT	OBJECTIVE: The recreation resource would be managed to accommodate existing use and prevent resource degradation in high use areas and provide for the anticipated increased recreational use.	OBJECTIVE: Manage the recreation resource to protect and maintain existing recreation sites. Emphasize management of the Green and New Fork Rivers and Boulder Lake.	OBJECTIVE: The recreation resource would be managed to accommodate existing use and future demands.	OBJECTIVE: The recreation resource would be managed to accommodate existing use and prevent resource degradation in high use areas.
	ACTIONS: Dispersed recreation uses would continue.	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative
	Existing recreation areas (71) would receive priority for maintenance and improvement prior to implementing new projects.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
RECREATION MANAGEMENT (Continued)	Special recreation permits would be required for commercial uses and competitive events.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Developed recreation areas receiving the highest use would receive priority for maintenance funds.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	The Green and New Fork Rivers would be managed to provide optimum fishing and floatboating opportunities.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Boulder Lake would be established as a special recreation management area. Recreation facilities would be developed to improve public access and use.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Pursue withdrawal, if necessary of all developed and semi-developed recreation sites (approximately 585 acres).	Recreation sites would remain open for mineral entry.	Same as Preferred Alternative	Same as Preferred Alternative
	Install facilities where needed to accommodate existing recreation uses and levels and provide for public health and safety.	Develop currently utilized undeveloped recreation sites.	Some undeveloped sites would be improved to developed sites.	Same as Preferred Alternative
	A 16-day camping limit would be implemented throughout the planning area.	The current 30-day camping limit would remain in effect.	Same as Alternative A	A 14-day camping limit would be implemented throughout the planning area.
	Implement recreation management plans for the Scab Creek, upper Green and New Fork River areas, and the Oregon Trail routes.	Implement a recreation area management plan for the upper Green River and New Fork River.	Same as Alternative A	Same as Alternative A

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
CULTURAL RESOURCE MANAGEMENT	OBJECTIVE: Provide protection for significant cultural resources. Resolve resource conflicts to provide overall resource protection.	OBJECTIVE: Minimize conflicts and protect cultural resources.	OBJECTIVE: Minimize conflicts between cultural resources and other uses of public lands. Provide adequate protection for cultural resources.	OBJECTIVE: Protect cultural resources and minimize conflicts between cultural resources and other uses of public lands.
	ACTIONS: Require no surface occupancy restrictions on significant cultural resource sites (approximately 1,100 acres currently identified).	ACTIONS: No surface disturbance would be allowed on sites 48SU301, 48LN300, and 48SU350.	ACTIONS: Same as Alternative A	ACTIONS: Same as Preferred Alternative
	Complete 3 cultural resource management plans to identify, salvage, and protect significant sites. Prepare plans on any newly discovered significant resources.	Complete one cultural resource management plan.	Same as Alternative A	Same as Preferred Alternative
	Pursue withdrawal, if necessary, from exploration and development of locatable minerals for significant cultural sites.	Do not withdraw any additional cultural areas from exploration and development of locatable minerals.	Same as Alternative A	Same as Preferred Alternative
	Implement the Oregon/Mormon Pioneer National Historic Trail Management Plan.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Pursue exchanges and cooperative agreements to enhance management of cultural resources.	No similar actions.	Same as Alternative A	Same as Preferred Alternative
LANDS MANAGEMENT	OBJECTIVE: Manage the public lands to support actions within the objectives and guidance described for all resources.	OBJECTIVE: Manage the public lands to support current resource goals and objectives.	OBJECTIVE: Manage the public lands in support of enhancement of minerals development, livestock grazing, timber management, and commercial and residential land uses.	OBJECTIVE: Manage the public lands to provide necessary realty actions to support the enhancement of cultural, wildlife, and watershed values.

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
LANDS MANAGEMENT (Continued)	ACTIONS: The C&MU classifications would be revoked. Approximately 6,300 acres would be identified as suitable for disposal through sale and(or) exchange.	ACTIONS: C&MU classifications in effect as of January 1, 1981 would remain in effect.	ACTIONS: Same as the Preferred Alternative.	ACTIONS: The C&MU classifications would be revoked. Approximately 5,300 acres would be identified as suitable for disposal.
	The entire planning area would be open for consideration of exchange proposals if the exchange would result in benefits to the public and would be in conformance with objectives of the RMP. Approximately 8,000 acres have specifically been identified as suitable for exchange. Desert Land Entries would be allowed provided they would not be within areas the Dept. of Agriculture is seeking to remove from cultivation, would not occur in highly saline or nonirrigable soils, would not be utilized to grow government price supported crops, would not deplete underground water supplies, and would meet the objectives of the plan.	780,000 acres would remain segregated for multiple use including: —2,000 acres which would remain classified for disposal. —36,000 acres which would remain segregated from general mining laws. —45,000 acres of the area which could remain open for DLEs.	Same as Preferred Alternative	Same as Preferred Alternative
Land Tenure Adjustment	Proposals for the disposal of public lands would be considered on a case-by-case basis.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Public land would be made available to governmental and quasi-governmental agencies and non-profit organizations for recreation or public purposes.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
LANDS MANAGEMENT Land Tenure Adjustment (Continued)	Public lands at the Cora Y highway crossing at the south end of Fremont Lake, and at other important wildlife migration routes would be retained to provide for free movement of big game.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Disposals may be used to resolve agricultural trespass.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
Rights-of-Way	Applications would be processed on a case-by-case basis.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Linear rights-of-way would generally not be allowed in no surface occupancy and no mineral leasing areas.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Approximately 7,636 acres in the Scab Creek area, 5,264 acres in the Rock Creek area, 20,720 acres of elk feedgrounds, and 9,375 acres of sage grouse leks would be considered right-of-way avoidance areas.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	An additional 12,865 acres would be considered avoidabce areas.	An additional 6,260 acres would be considered avoidance areas.	No additional avoidance areas would be identified.	An additional 1,685 acres would be considered avoidance areas.
	Areas requiring mitigation for surface disturbance activities would be considered limited areas for rights-of-way.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Restricted areas would include 665,000 acres for wildlife, water quality, cultural and recreation values.	Unrestricted areas would include 636,000 acres.	Same as Alternative A	Restricted areas would include 816,000 acres.

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
LANDS MANAGEMENT Rights-of-Way (Continued)	The remainder of the planning area would be considered open to rights-of-way.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Landfills or disposal facilities would be prohibited on floodplains, wetlands, and related riparian zones.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
ACCESS MANAGEMENT	OBJECTIVE: Suitable access to public lands would be provided by acquiring new access where needed, or abandoning or closing existing roads or two-tracks where high densities or other conditions warrant.	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative
	ACTIONS: Access across non-BLM administered lands would be sought where access needs are identified. Specific routes and procedures would be determined on a case-by-case basis.	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative
	Road closure and abandonment would be considered on a case-by-case basis and would be based on several criteria related to abandonment and demand.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
FIRE MANAGEMENT	OBJECTIVE: The fire management program would provide for the protection of public health, safety, life, and property, while providing maximum benefits of fire to overall resource management.	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative	OBJECTIVE: Same as Preferred Alternative

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
FIRE MANAGEMENT (Continued)	ACTIONS: Fire would be considered a management option for vegetation manipulation.	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative
	Fire would be considered a management option for disposal of forest product residues, seed bed preparation, hazard reduction, control of disease or insects, thinning, or species manipulation in support of forest management objectives.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Activities would include prescribed fire, containment, confinement, and control.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Prescribed fire would be conducted so that ambient air quality standards are not violated.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
ACEC MANAGEMENT Rock Creek ACEC	OBJECTIVE: Protect the Rock Creek drainage to assure quality aquatic habitat for the sensitive Colorado River cutthroat trout.	Same as Preferred Alternative	Same as Preferred Alternative	OBJECTIVE: The ACEC would be managed to protect the Rock Creek drainage to assure quality aquatic habitat for the sensitive Colorado River cutthroat trout. Objectives for management would also expand to include constraints on competing activities (oil and gas development, livestock grazing, timber harvest, rights-of-way) to provide habitat for wintering elk.

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
ACEC MANAGEMENT Rock Creek ACEC (Continued)	ACTIONS: The boundaries of the Rock Creek ACEC would not be expanded. The currently designated 5,264 acre Rock Creek ACEC would remain intact.	Same as Preferred Alternative	ACTIONS: Same as Preferred Alternative	ACTIONS: The boundaries of the Rock Creek ACEC would be expanded to include approximately 11,000 additional acres which encompass a major portion of the crucial winter range for elk on Deadline-Ridge and Graphite Hollow.
	The 5,264 acre ACEC would be leased for oil and gas with a no surface occupancy (NSO) provision. The ACEC lies within the Graphite Elk winter range area (approximately 11,000 acres) which would also be leased with an NSO provision.	The 5,264-acre ACEC would be closed to minerals leasing and development.	The 5,264-acre Rock Creek ACEC would be leased with a no surface occupancy stipulation.	The 5,264-acre ACEC would be closed to oil and gas leasing. Leases would be withheld on the additional acres, pending preparation of a habitat management plan to identify compatible development opportunities.
	Livestock grazing would continue provided no adverse affects occur to the drainage.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	No forest management activities would occur within the Rock Creek drainage (approximately 4,200 acres).	No forest management activities would occur within the ACEC (5,264 acres).	Same as Preferred Alternative	Restrictions on timber harvest would generally not allow harvest in the ACEC (5,264 acres).
	The Rock Creek drainage would be managed as a Class I VRM area. The remainder of the ACEC would be managed as a Class II VRM area. The drainage would be closed year round to ORV use. The remainder of the ACEC would be limited with seasonal restrictions from November 15 through April 30 and travel would also be limited to existing roads and trails.	The ACEC would be managed as a Class II VRM area. The entire ACEC would be closed year round to ORV use.	The ACEC would be managed as a Class II VRM area. The drainage would be closed year round to ORV use. The remainder of the area would be limited, with seasonal restrictions from November 15 through April 30 and travel would also be limited to existing roads and trails.	The ACEC would be managed as a Class I VRM area. The expanded area would be managed under a Class II VRM rating. The currently designated 5,264-acre ACEC would remain closed to ORV use. The additional 10,848 acres would be limited with seasonal restrictions from November 15 through April 30 and would also be limited to existing roads and trails.

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
ACEC MANAGEMENT Rock Creek ACEC (Continued)	A withdrawal from exploration and development of locatable minerals would be pursued,if necessary, for the Rock Creek drainage (approximately 4,200 acres).	No withdrawals would be pursued.	Same as Alternative A	Land exchange opportunities would be explored to acquire key habitat from state and private ownership. Approximately 700 acres would be recommended for acquisition for the proposed expanded Rock Creek ACEC. A withdrawal from exploration and development of locatable minerals would be pursued if necessary, for the Rock Creek drainage (approximately 4,200 acres).
Beaver Creek ACEC	OBJECTIVE: Manage the Beaver Creek drainage to assure quality aquatic habitat for the sensitive Colorado River cutthroat trout and elk calving habitat.	OBJECTIVE: The Beaver Creek drainage would be managed to protect Colorado River cutthroat trout habitat.	OBJECTIVE: Same as Alternative A	OBJECTIVE: Same as Preferred Alternative
	ACTIONS: Designate a portion of the Beaver Creek drainage (approximately 3,548 acres) as an ACEC.	ACTIONS: Beaver Creek would not be designated as an ACEC.	ACTIONS: Same as Alternative A	ACTIONS: Designate the entire Beaver Creek drainage (approximately 5,400 acres) as an ACEC.
	Approximately 3,548 acres and 14 miles of stream would be managed for the protection of the Colorado River cutthroat trout and elk calving habitat.	Approximately 5,408 acres would be managed for Colorado River cutthroat trout habitat only.	Same as Alternative A	Approximately 22 miles of stream and 5,408 acres would be managed for fisheries and elk calving habitat.
	Management for the area may include limiting livestock grazing to maintain or improve riparian condition on the Beaver Creek drainages.	Livestock grazing would continue currently.	Same as Alternative A	Management of the area may include limiting livestock grazing to maintain good riparian condition on the Upper Beaver Creek drainages and to improve riparian condition on approximately one mile of South Beaver Creek.

TABLE 1 (Continued)

SUMMARY COMPARISON OF ALTERNATIVES

	Preferred Alternative	Alternative A	Alternative B	Alternative C
ACEC MANAGEMENT Beaver Creek ACEC (Continued)	The area would be managed as a Class III VRM area. Off-road vehicle use would be limited to existing roads and trails.	The area would be managed as a Class III VRM area. Off-road vehicle use would remain undesignated.	Same as Preferred Alternative	Same as Preferred Alternative
	Management prescriptions may also include identifying transportation routes to reduce the potential for spills of toxic materials, and not allowing surface disturbance or clearcutting within 1,000 feet of the streams.	No similar actions	Same as Alternative A	Same as Preferred Alternative
	Partial timber cutting would be allowed provided that no adverse impacts would occur to the Colorado River cutthroat trout.	No timber clearcutting or road construction would be allowed within 1,000 feet of the drainages. Exceptions would be granted only if assurance can be given that such actions would not adversely affect crucial Colorado River cutthroat trout habitat.	Same as Alternative A	Same as Preferred Alternative
	Roads and facilities would generally follow existing alignments. Stream crossings would be limited to lower elevations and gentler slopes. Use of equipment and vehicles, including geophysical activity, would be allowed under conditions consistent with the objectives of the ACEC.	No similar actions	Same as Alternative A	Same as Preferred Alternative
	The existing fish barrier on Beaver Creek would be maintained.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

Table 2

IMPACTS COMPARISON

	Preferred Alternative	Alternative A	Alternative B	Alternative C
AIR QUALITY	Some short-term impacts would occur from emissions due to development and prescribed burning activities.	Slightly higher short-term impacts than the Preferred Alternative.	Slightly highter short-term impacts than Alternative A.	Same as Preferred Alternative
MINERALS	Displacement of drilling activity and increased costs would occur due to an increase in restricted areas, as compared to Alternative A.	Activities would be displaced and increased drilling and production costs would result from restrictions applied to sensitive areas.	Impacts would be similar to Alternative A. Fewer activities would be displaced due to allowing more activity to occur in sensitive areas.	Same as Preferred Alternative
	An estimated 1.25 trillion cubic feet of $CO_2$and methane would be available for production, although access would be difficult if not impossible in some areas of NSO provisions.	Revenues would be lost by not leasing 11,524 acres of high and moderate potential oil and gas areas. An estimated 1.25 trillion cubic feet of $CO_2$and methane would not be available for production by not leasing 5,264 acres of high potential oil and gas.	An estimated 1.25 trillion cubic feet of $CO_2$and methane would be available by leasing the acres of high oil and gas potential.	An estimated 1.25 trillion cubic feet of $CO_2$and methane would not be available for production by not leasing 5,264 acres of high potential oil and gas.
	Geophysical exploration would be discouraged from some areas due to restrictions and 7,636 acres being closed.	A slight adverse impact would occur to geophysical activity because of the 19,160 acres not available for exploration.	Same as Preferred Alternative	Geophysical exploration would be discouraged from some areas due to restrictions. Closing 12,900 acres to geophysical exploration would have a slight adverse affect.
	Limited access in the Beaver Creek ACEC would create conflicts with mineral development uses.	Not affected in this alternative.	Same as Alternative A	Same as Preferred Alternative
	No impacts would occur from the revocation of the oil shale, coal, and phosphate withdrawals.	No impacts would occur to phosphate, coal, or oil shale.	Same as Preferred Alternative	Same as Preferred Alternative
	Virtually no adverse impacts are anticipated from proposed withdrawals for wildlife, cultural, and recreation resources.	Not affected in this alternative.	Same as Alternative A	Same as Preferred Alternative

Table 2 (Continued)

IMPACTS COMPARISON

	Preferred Alternative	Alternative A	Alternative B	Alternative C
SOILS	Impacts to soils would be lower in this alternative than in Alternative A or Alternative B. Accelerated soil loss from ORV use, timber harvest, and livestock grazing would decline. Sedimentation would decrease over Alternative A.	Accelerated soil loss would occur due to mineral, grazing, and timber activity. Sedimentation would increase. Soil productivity would be lost from development on landslide areas.	Impacts to soils would be greater than in Alternative A with increased grazing use, timber harvest, and prescribed burns causing accelerated soil loss. Sedimentation would increase over Alternative A.	Impacts to soils would be the least in this alternative. Accelerated soil loss from ORV use, timber harvest, and livestock grazing would decline. Sedimentation would decrease over Alternative A.
WATERSHED	A decrease in sediment and salinity would occur under this alternative compared to Altermative A.	Surface disturbance on 7,492 acres would increase salinity contributions to the Green River drainage.	A greater increase (3%) in sedimentation, salinity, and channel incisions would occur than in Alternative A.	Same as Preferred Alternative
	Salinity contributions to the Green River drainage, due to land disposals, would be lower than under Alternative A.	Land disposals could increase salinity contributions into the Green River Drainage.	Same as Preferred Alternative	Same as Preferred Alternative
	Sedimentation would decrease resulting in only a slight adverse affect to the Colorado River cutthroat trout as compared to Alternative A.	Increased sedimentation into drainages with Colorado River cutthroat trout would have an adverse affect on the trout.	Same as Alternative A	Slightly lower sedimentation than Preferred Alternative
WILDLIFE HABITAT	Affects from surface disturbance would be reduced because of added restrictions to protect wildlife. 10,571 acres of habitat would be disturbed, impacting 16% of crucial deer winter range, 9% of crucial elk winter range and 4% of antelope winter range.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	No adverse affects should occur from vegetation manipulation.	Same as Preferred Alternative	Vegetation manipulation of sagebrush communities would result in wildlife population reductions for deer, antelope, and sage grouse.	Same as Preferred Alternative

Table 2 (Continued)

IMPACTS COMPARISON

	Preferred Alternative	Alternative A	Alternative B	Alternative C
WILDLIFE HABITAT (Continued)	Forage conflicts would decrease as compared to Alternative A.	Wildlife and livestock forage conflicts would continue.	Same as Alternative A	Same as Preferred Alternative
	2,498 riparian acres would be improved from poor to fair condition.	Riparian condition would decline affecting wildlife habitat. Quality stream habitat for Colorado River cutthroat trout would decline due to increased sedimentation. 2,319 acres would be adversely affected by declines in condition.	Riparian areas would continue to be impacted by livestock grazing. 2,498 acres would remain in poor condition and other areas could also decline. Additional riparian habitat areas would be allocated to livestock grazing creating wildlife conflicts.	Same as Preferred Alternative
	Cover levels for elk would be maintained reducing adverse affects to minimal.	The 3,860 acres of timber harvested over the life of the plan would remove elk cover from crucial elk ranges. A decline in elk population would occur.	Timber harvesting activities would adversely affect elk populations by reducing cover levels by 10 percent.	Same as Preferred Alternative
	Virtually no impacts would occur to wildlife populations from ORV activity.	Disturbance of wildlife by ORVs, particularly in winter, would result in winter range abandonment, increased mortality, and reduced animal productivity.	ORV activity would increase wildlife/vehicle conflicts and adverse affects compared to Alternative A.	Same as Preferred Alternative
LIVESTOCK GRAZING AND VEGETATION	Forage allocations would not be as great as in Alternative B reducing net forage gains. Forage production should stabilize or increase in heavily utilized areas.	No additional forage allocations would have an adverse affect on livestock grazing.	Livestock would benefit from new range improvements and acreage allocations.	Same as Preferred Alternative
	Livestock would benefit from the removal of all wild horses, eliminating competition for forage.	900 AUMs would be allocated to wild horses, reducing livestock allocations.	Same as Preferred Alternative	Conflicts between livestock and wild horses would continue. 1,200 AUMs would be allocated to wild horses, creating a minor adverse impact on the permittees in the wild horse management area.

Table 2 (Continued)

IMPACTS COMPARISON

	Preferred Alternative	Alternative A	Alternative B	Alternative C
LIVESTOCK GRAZING AND VEGETATION (Continued)	Allotments receiving early spring use or season-long use would improve in range condition due to the implementation of AMPs.	Allotments not covered by AMPs and receiving early spring use or season-long use would decline in condition.	Same as Preferred Alternative	Same as Preferred Alternative
	157 AUMs (1,375 acres) would be lost to forage production for livestock in each 10 year period due to oil and gas activities.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Minimal short-term impacts would occur to vegetation and soils from the construction of range improvements (77 acres).	No impacts would occur from the construction of range projects.	Minimal impacts would occur to vegetation and soils from the construction of range improvements (91 acres).	Same as Preferred Alternative
	Forage production would increase in heavily utilized areas in the "I" category allotments.	Forage production would decrease in heavily utilized "I" category allotments.	Same as Preferred Alternative	Same as Preferred Alternative
	Disposal of public lands and fencing recreation areas from livestock use would result in a slight decrease in AUMs available for livestock.	Disposal of public lands would result in a decrease in available AUMs.	Disposal of public lands would result in fewer available AUMs than in Alternative A.	Same as Preferred Alternative
	Approximately half of the unallotted lands would be allocated to livestock, benefitting livestock.	Unallotted lands would not be managed and no forage would be allocated resulting in a slight adverse impact to livestock.	All AUMs available on the unallotted parcels would be allocated to livestock, benefitting livestock.	No AUMs would be allocated to livestock on the unallotted lands, resulting in a slight adverse impact to livestock.
	Stock driveways would be protected from disposals to provide contiguous trailing which would benefit livestock uses.	Portions of stock driveways would be disposed of resulting in increased livestock transport costs.	Same as Preferred Alternative	Same as Preferred Alternative
WILD HORSES	The wild horses would be removed.	Wild horses would be displaced to nontraditional areas, by surface disturbing activities. Horses would continue to create a traffic hazard in the LaBarge area.	Same as Preferred Alternative	Wild horses would be managed in the Desert Common Area and no adverse impacts to wild horses would occur.

Table 2 (Continued)

IMPACTS COMPARISON

	Preferred Alternative	Alternative A	Alternative B	Alternative C
FORESTRY	Restrictions applied to 66% of the forest base and removing 23% of the forest acreage from harvest potential would result in lower harvest levels than Alternative A.	Approximately 10% of the forest base would be affected by restrictions. 17% of the forest base would be excluded from all forest management activities which would result in maintaining current harvest levels.	Restrictions applied to 6% of the forest base and removing 16% of the forest acreage from harvest potential would result in an increase in harvest levels over Alternative A.	Restrictions applied to 7% of the forest base and removing 28% of the forest acreage from harvest potential would result in the largest reduction of harvest levels of any alternative.
	Mortality rate would increase by 3% compared to Alternative A.	Mortality rate would remain at 1.6 mmbf in 20 years resulting in a reduction of overall forest productivity.	Mortality rate would decrease by 6% compared to Alternative A.	Mortality rate would increase by 6% compared to Alternative A.
VISUAL RESOURCES	Visual resources would benefit from the no surface occupancy stipulation on 20,720 acres surrounding elk feedgrounds and to 585 acres of recreation sites.	Visual resources would benefit from the no surface occupancy stipulation on 20,720 acres surrounding elk feedgrounds.	Same as Alternative A	Same as Alternative B
	Reduction of the riparian buffer to 100 feet would have an adverse affect on visual resources.	Minimal adverse impacts would occur with the riparian buffer of 200 feet.	Same as Preferred Alternative	Same as Preferred Alternative
	Not allowing clearcutting in some significant wildlife areas would benefit visual resources.	Some adverse impacts would occur from clearcutting in some important wildlife habitat areas.	Same as Preferred Alternative	Same as Preferred Alternative
	Visual resources would benefit from ORV designations compared to Alternative A.	There would be a minor adverse impact to visual resources from ORV activity due to lower number of ORV designations compared to Alternative C and Preferred Alternative.	Visual resources would benefit slightly less than Preferred Alternative due to fewer ORV designations.	Visual Resources would benefit slightly more than preferred alternative due to more ORV designations.
	Visual resources would benefit from improved grazing management on riparian areas.	Visual resources would benfit from improved management of riparian areas in allotments with AMPs only.	Same as Preferred Alternative	Same as Preferred Alternative
	Vegetation manipulation would cause minor adverse impacts in the short term.	Vegetation manipulation would not adversely impact visual resources.	Vegetation manipulation would cause slightly higher impacts than Preferred Alternative.	Same as Preferred Alternative

Table 2 (Continued)
IMPACTS COMPARISON

	Preferred Alternative	Alternative A	Alternative B	Alternative C
VISUAL (Continued)	Initation of a program to visually improve the appearance of the oil fields would have a positive affect on visual resources.	Not affected in this alternative.	Same as Alternative A	Same as Preferred Alternative
OFF-ROAD VEHICLES	Adverse impacts would occur to recreation users because of increased vehicle use restrictions compared to Alternative A.	Minor adverse impacts would occur to off-road vehicle uses due to closures and winter restrictions.	Slightly higher adverse affects would occur from closing winter ranges to ORV use compared to Alternative A.	Same as Preferred Alternative
	Closure of the Mesa, Deer Hills and oil field deer winter ranges to ORV use, from Nov. 15 through April 30, would have an adverse impact on ORV use.	Closure of 118,543 acres in the Fort Hill Mountain and Graphite Hollow winter ranges to snowmobile use, would have a minimal adverse impact on ORV use.	Same as Preferred Alternative	Same as Preferred Alternative
	Establishment of ORV open areas would benefit ORV use.	No benefits would be provided from not establishing ORV open areas.	Same as Preferred Alternative	Same as Alternative A
	Seasonal closures would have a minimal adverse affect on ORV use. Limiting use to existing roads and trails would allow most uses to continue.	Minor adverse impacts would occur to off-road vehicle uses due to closures and winter restrictions.	Same as Preferred Alternative	Same as Preferred Alternative
RECREATION	Recreation resources would benefit from increased wildlife population levels, decreased timber harvesting, and allocation to recreation of unallotted riparian areas, with the result being increased wildlife habitat and recreation user days.	Recreation would benefit from the improvement and protection of wildlife habitat although timber harvesting activities would displace recreation uses.	Adverse impacts to recreation resources would occur due to decreases in wildlife population levels, increased timber harvesting, and allocating unallotted lands to grazing. The licensing of approximately 2,396 additional AUMs would have an adverse affect on recreation, as 40-50% of these lands are in riparian areas.	Benefits to recreation would be slightly higher than under the preferred alternative due to lower timber harvest levels and less livestock grazing use.

Table 2 (Continued)

IMPACTS COMPARISON

	Preferred Alternative	Alternative A	Alternative B	Alternative C
RECREATION (Continued)	Removal of wild horses would reduce recreation opportunities.	Management of the Desert and LaBarge wild horse herds would benefit recreation by providing wild horse viewing opportunities.	Same as Preferred Alternative	Same as Preferred Alternative
	Recreationists and recreation resources would benefit from the application of no surface disturbance stipulations applied to recreation sites and areas within 500′ of water.	Same as Preferred Alternative	Recreation would benefit from the no surface disturbance stipulation in the Upper Green SRMA and from wildlife protection stipulations.	Same as Preferred Alternative
	Recreation resources and experiences would benefit from fencing out livestock from developed and semi-developed recreation sites.	Continued livestock grazing in recreation sites would have an adverse impact on the resource and public safety.	Recreation resources and experiences would benefit from fencing out livestock from developed recreation sites.	Same as Preferred Alternative
	Recreation would benefit from the protection of recreation areas and the active pursuit of public access and land exchanges.	The granting of rights-of-way and land disposals would adversely affect recreation resources.	Same as Alternative A	Same as Preferred Alternative
	Recreation would benefit from managing and protecting cultural sites.	Same as Preferred Alternative	Recreation resources would benefit from protection of cultural sites but less than in the Preferred Alternative.	Same as Preferred Alternative
	Recreation users would benefit from increased recreation sites.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
CULTURAL RESOURCES	Cultural resources would benefit from the implementation of proposed management actions of other resources, including minimized surface disturbance, regulated grazing and ORV open areas.	Minor adverse impacts to cultural resources would occur due to surface disturbing activities and ORV use.	Minor adverse impacts to cultural resources would occur due to increased oil and gas activity, vegetation manipulation, livestock grazing, timber harvesting, and ORV open areas.	Cultural resources would benefit from limited oil and gas activity, no grazing in unallotted parcels, reduced timber harvesting, increased ORV closures and limitations, and pursuit of protective land exchanges.

Table 2 (Continued)

IMPACTS COMPARISON

	Preferred Alternative	Alternative A	Alternative B	Alternative C
CULTURAL RESOURCES (Continued)	Impacts due to increased use of historic trails are expected to be minor.	Same as Preferred Alternative	Same as Preferred Alterntaive	Same as Preferred Alternative
	Cultural resources would benefit from right-of-way avoidance areas.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
LANDS	Benefits would occur from disposals to local governments and local communities.	Benefits would occur from disposals to local governments.	Same as Preferred Alternative	Same as Preferred Alternative
	No adverse affect would occur from removal of the CMU classifications.	An adverse impact would occur from the current CMU classification by restricting the availability of lands for community expansion.	Same as Preferred Alternative	Same as Preferred Alternative
FIRE MANAGEMENT	Over 400,000 acres would be subject to wildlife requirements.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	Suppression costs would decrease as compared to Alternative A.	Suppression costs would be higher than Preferred Alternative or Alternative B.	Suppression costs would be lower than the Preferred Alternative.	Same as Preferred Alternative
ACEC	In the Rock Creek ACEC virtually no adverse impacts would occur to, particularly, Colorado River cutthroat trout, aquatic habitat, and elk habitat.	In the Rock Creek ACEC, minor impacts would occur to elk habitat.	Slightly higher impacts would occur to elk habitat as compared to Alternative A.	Same as Preferred Alternative
	Management in the Beaver Creek area would provide protection for the Colorado River cutthroat trout and elk calving habitat. No adverse impacts to the natural resources are expected. Colorado River cutthroat trout and elk calving habitat.	In the Beaver Creek Area unrestricted ORV activity and increased road construction and associated resource development, outside the 1,000 foot buffer along Beaver Creek, could adversely impact	Same as Alternative A	Maximum protection and enhancement of Colorado River cutthroat trout and elk calving habitat would result in no adverse impacts to these resources.

Table 2 (Continued)
IMPACTS COMPARISON

	Preferred Alternative	Alternative A	Alternative B	Alternative C
SOCIOECONOMICS	Mineral exploration and development, ranching, and recreation related businesses would remain the area's major economic activities.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	The socioeconomic impacts of mineral activities would change little from current levels. (See Affected Environment)	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative
	The projected joint output revenue from BLM-administered timber, livestock and recreation activities would increase by less than 1% in the first 10 years and less than 2% in 20 years. Employment increases would be of the same magnitude.	Joint output revenue resulting from BLM-administered timber, livestock and recreation activities would decline about 3% in the first year and 6% in 20 years. Declines in employment would be in the same magnitude.	Sales from BLM-administered livestock and timber activities would increase over current levels while returns from recreational activities would decline slightly. Overall, this alternative would result in an increase of related annual area joint output revenues of 3% in 10 years and 7 to 8% in 20 years. Changes in employment would be in the same magnitude.	Returns from BLM-administered livestock, timber, and recreational activities would increase over current levels. Overall, this alternative would result in an increase of less than 1% in related joint-output revenues. Changes in employment would be in the same magnitude.
	This alternative would cause virtually no economic impacts to the local economy, although some individuals or businesses may experience some noticeable impact from changes in allocated forage, timber harvest and recreation use.	Same as Preferred Alternative	Same as Preferred Alternative	Same as Preferred Alternative

CHAPTER 1

PURPOSE AND NEED

INTRODUCTION

This environmental impact statement (EIS) evaluates alternative land use plans for the management of public lands and resources administered by BLM in the Pinedale Resource Area. Each alternative analyzed in detail represents a complete and reasonable resource management plan (RMP) which could be used to guide the management of the Pinedale Resource Area. Each alternative also considers the land use plans of local and state governments and other federal agencies in and around the Pinedale Resource Area to assure that the approved RMP will be compatable with them.

The process for the development, approval, maintenance, and amendment of RMPs was initiated under the authority of Section 202(f) of the Federal Land Policy and Management Act of I976 (FLPMA). The process is guided by Bureau of Land Management planning regulations in Title 43 of the Code of Federal Regulations, part 1600 (43 CFR 1600).

Development of the RMP represents the second tier of the Bureau land-use planning process and as such, prescribes the future resource and land use allocations for the public lands in the Pinedale Resource Area. This process of resource and land use allocations guides activity planning and daily operations.

The activity planning phase represents the third tier of the planning process and incorporates the resource and land use decisions of the RMP into the specific management guidance for administering the uses in the resource area. During activity planning, the management prescriptions in the RMP are applied to specific local areas in developing and implementing site-specific plans (e.g., allotment management plans, habitat management plans); in issuing various land and resource use authorizations; in identifying mitigation needs; and in developing and implementing other similar plans and actions.

After completion, the Pinedale RMP will be kept current through maintenance, amendments, or revisions, as demands on public lands and resources change, as the land and resource conditions change, or as new information is acquired.

PURPOSE AND NEED

The major purpose of developing the RMP is to provide a comprehensive framework for managing and allocating uses of the public lands and resources within the Pinedale Resource Area. The RMP/EIS also complies with the current BLM rangeland policy and with a court mandate for preparation of a grazing EIS.

Currently, management framework plans (MFPs) provide the management direction for the Pinedale Resource Area. The RMP/EIS will consider and analyze the consequences of the current and alternative management of the resource area to attempt to resolve the resource issues; and provide direction for site-specific activity planning and implementation of management actions in the future. The RMP will supersede all existing management framework plans.

A further purpose of the RMP/EIS is to evaluate the consequences of all BLM management actions in one document and to reduce the number and complexity of environmental assessments (EAs) that otherwise would have to be prepared when the plan is implemented.

DESCRIPTION OF THE PLANNING AREA

Within the Pinedale Resource Area are several thousands of acres of land administered by other federal agencies or other entities. Providing management direction for any lands within the Pinedale Resource Area boundary but not administered by the BLM is not an objective of the RMP. Thus, this RMP/EIS does not address any lands within the Teton National Park or the Bridger-Teton National Forest (whether of federal, state, or private surface and mineral ownership). Any BLM administrative responsibilities within these areas (e.g., actions concerning the federal mineral estate) are carried out in accordance and consistent with the surface management agency or other entities' policies, procedures, and plans. In addition, small scattered land parcels along the

Snake River in Teton County, that are in longstanding litigation over whether they are in federal or nonfederal ownership, are not addressed in this RMP/EIS. The remaining area in the Pinedale Resource Area, which is being addressed in this document, is the geographic area referred to as the "planning area."

The planning area covers portions of Sublette and Lincoln Counties in western Wyoming. It is bounded on the west, north, and east by the Bridger-Teton National Forest and on the south by the BLM Kemmerer and Green River Resource Areas (Map 1).

Within the planning area, land and mineral ownership is varied and overlapping. Following is a summary of the land surface and mineral ownership and administrative relationships for the area:

> Both federal surface and mineral estate administered by BLM (approximately 917,000 acres);
>
> Federal surface administered by other federal agencies with federal mineral estate administered by BLM (approximately 27,800 acres);
>
> State owned and administered surface with federal mineral estate administered by BLM (approximately 2,800 acres);
>
> Privately owned and administered surface with federal mineral estate administered by BLM (approximately 276,000 acres);
>
> Federal surface administered by BLM with state owned and administered minerals (approximately 13,000 acres);
>
> State or privately owned surface and minerals with no BLM administrative authority (approximately 409,000 acres).

Sublette County, with a population of 5,095, makes up the majority of the planning area. Pinedale is the largest community, located approximately 80 miles southeast of the Jackson Hole area. Other communities include Big Piney, Marbleton, Daniel, and Boulder, in Sublette County; and LaBarge in Lincoln County.

Elevations above 7,000 feet have a typical mountain climate of cool summers, cold winters, winter snows, spring rains, and intermittent summer showers. The lower elevations (below 7,000 feet) have a typical cold desert climate with warm summers, cold winters, and low precipitation.

In general, throughout the resource area approximately 30 percent of the annual precipitation falls from April through June, a critical moisture period for optimum plant growth. Although average summer temperatures for the lower elevations are relatively mild (ranging from 50 degrees in June and 70 degrees in August), temperatures above 100 degrees occur infrequently. Normally, the highest summer temperatures occur in July and August. Average summer temperatures in the higher elevations are markedly cooler, averaging ten degrees cooler than the lower elevations. Winter temperatures can be extreme and reach to 63 degrees below zero. The lowest winter temperatures for this area normally range between 20 and 30 degrees below zero. Winds are generally light from the west and southwest but can sometimes be strong in the winter and spring. Snow generally makes the higher elevations inaccessible during the winter and spring. The lower elevations are accessible for longer periods. Lack of moisture in the lower elevations is probably the most critical factor affecting vegetation growth. The higher elevations receive more moisture; however, the growing season is short due to a limited number of frost-free days and the soils are often poorly developed.

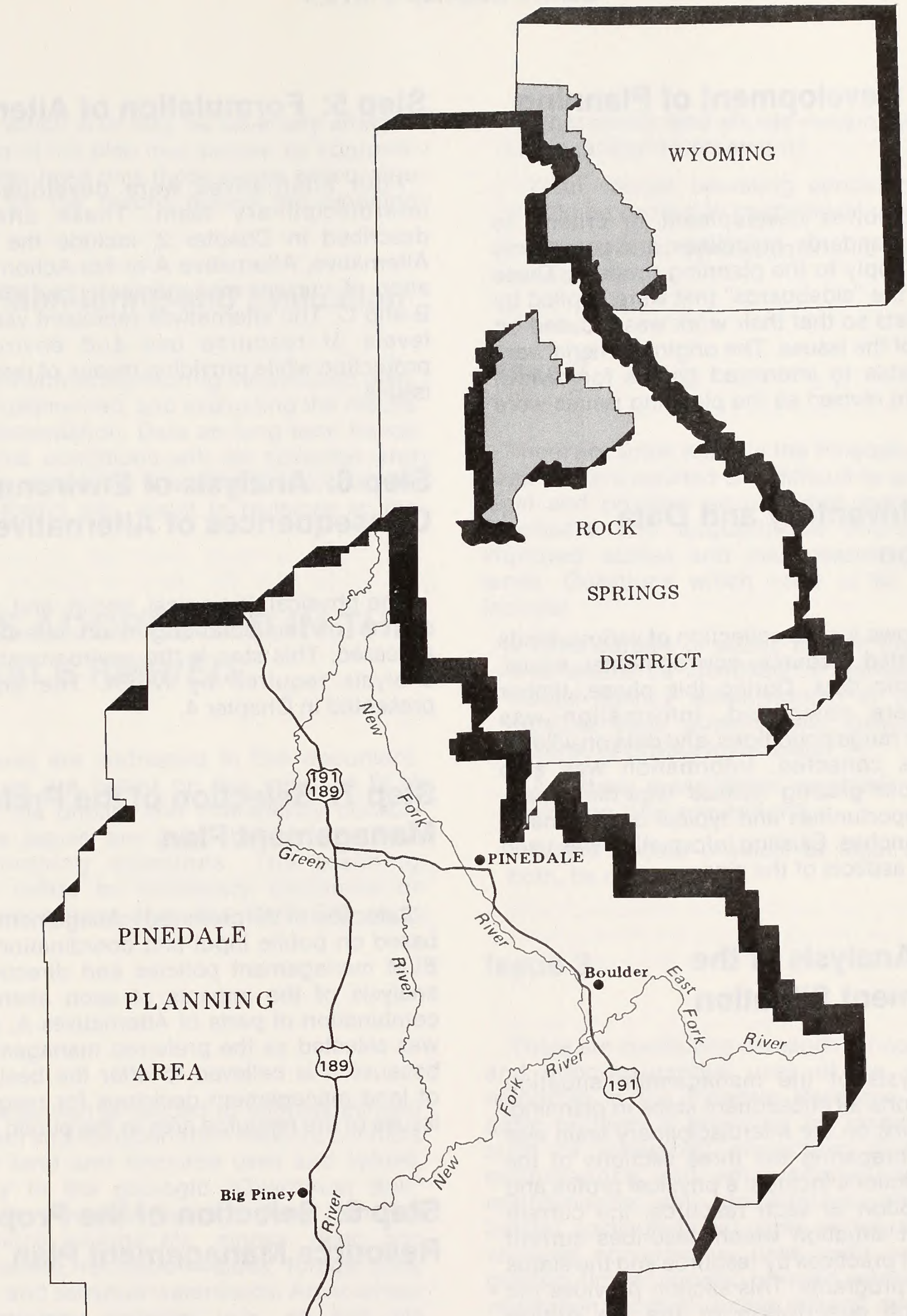
THE PLANNING PROCESS

Figure 1 provides an illustration of the planning process. The action steps relating to the process are described below.

Step 1: Identification of Issues

Step 1 is intended to identify resource management problems, conflicts, or opportunities that can be resolved through the planning process.

Several public notices were published and an open house was held to gain public input into identifying land and resource use management problems, conflicts, or opportunities in the resource area. Along with the general public, other federal agencies, and state and local governments were also asked to participate in the issue identification process. The BLM combined the information from these and internal sources into four planning issues that could be resolved through the RMP/EIS process. The issues were published and distributed to interested parties.



Map 1
GENERAL LOCATION
Pinedale Resource Management Plan

Step 2: Development of Planning Criteria

Step 2 involves development of criteria to identify the standards, guidelines, and constraints that would apply to the planning process. These criteria are the "sideboards" that were applied by the specialists so that their work was focused on resolution of the issues. The original criteria were made available to interested parties for review. Criteria were revised as the planning issues were defined.

Step 3: Inventory and Data Collection

Step 3 allows for the collection of various kinds of issue-related resource, environmental, social, and economic data. During this phase, timber surveys were completed, information was collected on range conditions, and data on wildlife habitat was collected. Information was also obtained from grazing lessees regarding management opportunities and typical operations of individual ranches. Existing information was used for all other aspects of the plan.

Step 4: Analysis of the Management Situation

The analysis of the management situation (MSA) supports all subsequent steps in planning. Each specialist on the interdisciplinary team was involved in preparing the three sections of the MSA. The sections include: a physical profile and brief description of each resource; the current management situation which describes current management practices by resource and the status of on-going programs. This section provides the basis for the description of the No Action alternative and the basis for the planning issues; and the analysis of future demands which identifies present and future resource and land demands, capabilities, and problems and conflicts of current management. The MSA is on file at the Pinedale Resource Area Office.

Step 5: Formulation of Alternatives

Four alternatives were developed by the interdisciplinary team. These alternatives, described in Chapter 2, include the Preferred Alternative, Alternative A or No Action (continuation of current management), and Alternatives B and C. The alternatives represent variations of levels of resource use and environmental protection while providing means of resolving the issues.

Step 6: Analysis of Environmental Consequences of Alternatives

The physical, biological, social, and economic effects of implementing each alternative are assessed. This step is the environmental impact analysis required by NEPA. The analysis is presented in Chapter 4.

Step 7: Selection of the Preferred Management Plan

Selection of the preferred management plan was based on public input and coordination, current BLM management policies and directions, and analysis of the impacts of each alternative. A combination of parts of Alternatives A, B, and C was selected as the preferred management plan because it is believed to offer the best balance of land management decisions for resolving the issues of the resource area in the public interest.

Step 8: Selection of the Proposed Resource Management Plan

Based on the result of public review and comment, a proposed resource management plan will be selected and published with a final EIS. The selection and approval of the resource management plan is made after a 30-day protest period on the proposed plan. Any person who participated in the planning process and who has an interest which is or may be adversely affected by adoption of the plan may protest its approval. A protest may raise only those issues which were submitted for the record during the planning process.

Step 9: Monitoring and Evaluation

This step involves monitoring the selected plan, after it is implemented, and evaluating the results of the implementation. Data on long-term trends and resource conditions will be collected and analyzed to determine the effectiveness of the plan. Monitoring may result in revisions to the plan.

ISSUES ADDRESSED IN THE PINEDALE RMP/EIS

Four issues are addressed in this document. These issues are based on the input of BLM personnel, the public, and interagency consultation. The issues are listed below with their related planning questions. The planning questions relate to necessary decisions or resource allocations that the RMP/EIS must answer.

Issue 1

Special attention is needed to address mineral development and transportation network conflicts with other land and resource uses and values, particularly in the geologic "Overthrust Belt" portion of the Pinedale Resource Area. Principal considerations include elk, moose, deer, and fisheries habitat, recreation values, forage uses, air quality, and sensitive watersheds. Areas where surface-disturbing activities (e.g., oil and gas facilities and rights-of-way) are suitable, not suitable, or restricted, need to be identified. Questions to be answered include:

What public lands should and should not be made available for mineral exploration and development?

What public land should be restricted from future routing of utility and transportation facilities?

What public land should remain available for future facility development?

What special operating conditions, if any, should be applied to geophysical operations?

What special conditions should be attached to such uses?

Issue 2

There are some areas in the Pinedale Resource Area that are isolated and difficult to access (i.e., legal and physical access) and manage. Land disposals and acquisitions could provide improved access and manageability of public lands. Questions which need to be answered include:

What parcels of public land in the resource area should be identified for transfer to other federal agency administration or disposal to local or state governments, private organizations, or private individuals?

Are there areas where emphasis should be placed on land acquisition?

Where should physical or legal access, or both, be obtained?

Issue 3

There are conflicting demands for consumptive and nonconsumptive uses of the vegetation resources in the Pinedale Resource Area. The basic problem is providing for resource values such as watershed protection; riparian area maintenance and enhancement; vegetation maintenance; soil stabilization; and wildlife habitat, particularly big game winter range, while allowing consumptive uses such as livestock grazing; timber harvest; off-road vehicle use; and vegetation removal during mineral development. Questions that must be answered in the plan include:

What uses should be allowed in the resource area in general?

What conditions of use are needed to protect water quality?

What watershed management practices are needed to reduce soil erosion and salinity contributions to the Green/Colorado River systems?

What activities/uses should be allowed on wetland/riparian and aquatic habitat?

In what condition should big game habitat be managed? What types of management practices, or habitat improvement projects, may be necessary to maintain or improve wildlife habitat for threatened and endangered species, elk, mule deer, antelope, moose, sage grouse, and fisheries?

What objectives should be established to guide livestock grazing management?

What type of improvements may be needed to meet grazing management objectives? What adjustments in livestock use may be needed because of range suitability, range condition and trend, range potential for improvement, present forage productivity, and other conflicting or competing land and resource uses?

What areas are suitable for livestock grazing? What management practices may need to be applied and in what allotments?

What livestock stocking levels are appropriate and under what conditions to provide forage for big game and wild horses?

Should the wild horse herds in the LaBarge and Desert herd areas be maintained and, if so, at what levels?

What lands should be made available for the harvest of forest products and are there specific areas that should be removed from the timber base acreage?

What conditions should apply to the forest management program to protect other resource values?

What timber harvest management practices will minimize impacts to important elk habitat?

What areas should be identified for either full fire suppression or limited suppression of wildfire? Are there areas where fire should be allowed to burn with virtually no suppression activity? Where and under what conditions should fire be used as a vegetative management tool (e.g., prescribed burning)?

Issue 4

ORV use can conflict with other resources including wildlife values particularly deer and elk winter range and watershed values. Recreation uses are varied and numerous in the resource area. Providing suitable and sufficient recreation facilities can be a problem. Conflicts sometimes arise with other resource uses such as mineral development and livestock grazing. Questions that need to be answered include:

Where should recreation use, including ORV use, be authorized and under what conditions should it be permitted?

What areas should be identified as open, limited, or closed to ORV use?

PLANNING CRITERIA

Planning criteria establish guidelines for proceeding with the planning process. A major function is to provide the constraints or ground rules to guide and direct the development of the reasonable alternatives. Planning criteria utilized in formulating the alternatives can be found on Appendix A.

Special Situation Concerning Public Land Withdrawal and Classification Orders in Effect On January 1, 1981

On February 10, 1986, Federal Court Judge Joseph H. Pratt issued a preliminary injunction order, in the *National Wildlife Federation (NWF) versus Robert F. Burford, et al.* (Civil Action No. 85-2238 D.C.D.C.). This order instructs the BLM to manage public lands in conformity with the express conditions contained in land withdrawal and land classification orders that were in effect on January 1, 1981. For the purposes of this EIS, that requirement of Judge Pratt's order will be satisfied by addressing all of those withdrawals and classifications, including any that have been terminated, in the description and analysis of Alternative A (the continuation of existing management or "no action"). The descriptions and analyses of all other alternatives, including the Preferred Alternative, are to be consistent with the objectives of each respective alternative, i.e., if any of the withdrawals and classifications would be terminated under a given alternative(s), they must be addressed accordingly in the appropriate alternative(s).

It should be understood that Judge Pratt's preliminary injunction order does not preclude the

BLM from considering alternative allocations of the affected public lands and their resources to different uses. Nor does it preclude the BLM from making land use planning decisions that would allocate them to different uses. It does, however, preclude BLM from "implementing" a decision that would be contrary to withdrawal and classification orders as they existed on January 1, 1981, unless or until the pending litigation is resolved. Thus, BLM could take no action on the lands involved that would be contrary to the withdrawals and classifications until the lawsuit is settled and, then, only if the action is consistent with the Court's decision.

The BLM has appealed the preliminary injunction order. If the appeal is successful, actions that were taken to terminate withdrawal and classification orders that existed on January 1, 1981, will have been effective. Such prior termination actions in the Pinedale Resource Area that are affected by the preliminary injunction order, are noted where appropriate in this EIS.

CHAPTER 2

ALTERNATIVES

OVERVIEW

The basic goal in formulating alternatives is to identify various combinations of public land uses and resource management conditions that would resolve the planning issues. Each alternative represents a complete and reasonable plan to guide future management of public land and resources. One alternative represents "no action," which is a continuation of present management. Other alternatives are to provide a range of choices for solving the problems identified as existing with present management. They were formulated by placing varying degrees of emphasis on environmental protection or resource use.

This chapter presents four resource management alternatives including the Bureau's preferred alternative. The preferred alternative generally allows resource use with greater emphasis on protection of the natural environment than Alternatives A or B. It is made up of watershed and wildlife prescriptions from Alternative C, wild horse management prescriptions from Alternative B, and the remaining resource management prescriptions (such as mineral leasing, forest management, and livestock grazing) from Alternatives A, B, and C. Alternative A is the continuation of current management. Alternative B emphasizes developing and using natural resources; it does provide for environmental protection, even though the major emphasis is on resource use. Alternative C allows resource use with more emphasis on protection of the natural environment. Table 1 is a comparison of the alternatives.

The Area Manager and interdisciplinary team of resource specialists identified several general approaches to resolving the planning issues. Land and resource actions, use allocations and management direction for all uses were developed to fit each alternative. Since management direction for one resource has the potential for affecting the management for other resources, the components of each alternative were developed using an interdisciplinary approach. Planning criteria were used to guide the development of the alternatives. The assumption and analysis guidelines listed in Appendix B were utilized in formulating the impact analysis of the alternatives. Additionally, several cause and effect actions occurring in the resource area were identified as a part of the impact analysis.

After a plan has been approved, proposed actions would be considered in conformance with the plan if they: (1) are specifically provided for in the plan; (2) are consistent with the provisions, guidelines, and objectives of the plan; or (3) are not specifically prohibited and are not inconsistent with objectives and other actions which are specifically provided for in the plan.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

No Oil and Gas Leasing

The alternative of not issuing new oil and gas leases was suggested as a means to resolve the issues associated with oil and gas exploration and development. Since nearly the entire resource area is under lease and portions are developed, this alternative would not help resolve the issues over the short term. This alternative was determined "not reasonable" for the following reasons:

1. Most of the areas where resource values conflict with oil and gas development are currently leased for oil and gas. Much of the affected area is unitized and the leases are under development (in production). The estimated life of these producing areas is 20 to 30 years.
2. Management of the resource area should attempt to respond to the need for oil and gas resources. However, not leasing portions of the resource area in response to other identified resource needs, is addressed as a part of the alternatives considered in detail.
3. In most cases, oil and gas exploration and development could take place in a manner that would avoid unacceptable adverse impacts to the other resources in the resource area.

No Grazing on Public Lands

Based on review and analysis of vegetation, watershed, wildlife, and other resource data, a prohibition of livestock grazing throughout the resource area was not warranted. Environmentally sensitive areas such as riparian zones, crucial watersheds, and crucial wildlife habitat areas could be managed to allow, and at times benefit from, livestock grazing use. Various management actions are identified in the alternatives considered in detail, including elimination of livestock grazing in crucial problem areas, as a means of resolving resource conflicts. However, total elimination of livestock grazing on public lands would not resolve the issues on grazing lands. Rangelands are generally in fair or good condition.

Public comments on the issues and the planning process did not identify the need to analyze a "no grazing alternative" in detail.

Extensive costs would be incurred by monitoring and enforcement activities and fence construction to ensure that no grazing use occurred on public lands.

No Timber Harvest

A no timber harvesting alternative was determined to be unreasonable and was not analyzed in detail.

The Pinedale Resource Area has about 47,860 acres of land capable of sustaining forest production which need to be managed to maintain healthy, vigorous forest conditions. In some cases, environmentally sensitive areas such as riparian zones, crucial watersheds and crucial wildlife habitat areas could be managed to allow and sometimes benefit from timber harvest. In the past, nature has managed and maintained many forest stands through wildfire. Through human fire control efforts over the past 50 to 75 years, the occurrence of, and acres affected by fire have been substantially reduced. Consequently, many forest stands are overmature and in a declining state of vigor and health. Timber harvesting is used as an essential substitute for fire to sustain the ecological processes that maintain healthy forest conditions. There is sufficient local demand to warrant continued forest product harvesting, and public comments have not indicated a need or desire to eliminate timber harvesting from BLM-administered lands.

The total elimination of timber harvesting was not considered a viable alternative. Variations among the alternative plans analyzed in detail consider certain public areas to be closed to timber harvesting and removed from the available forest management base.

Maximum Unconstrained Alternatives

Alternatives that proposed maximum development, production, or protection of one resource at the expense of other resources were not analyzed in detail. The purpose of this plan is to provide multiple use management recommendations for the resource area. Promoting solely one resource or another at the expense of eliminating other resource values and uses does not meet the overall objectives of the Bureau's multiple use management responsibilities. However, the alternative plans analyzed in detail do include various considerations for eliminating or maximizing individual resource values or uses in specific areas where conflicts exist.

ALTERNATIVES CONSIDERED FOR DETAILED ANALYSIS

Each of the alternatives considered in detail represents a complete, reasonable, practical, and implementable multiple-use plan to direct future management of the Pinedale Resource Area (Table 1).

Actions Common To All Alternatives

Some management actions and guidance described in this section remain the same under each of the alternatives. Thus, the following management guidance is applicable to, and constitutes a part of, each alternative and is presented here to avoid repetition.

Restrictions For Surface-Disturbance Activities

Surface-disturbance measures are restrictions necessary to protect certain sensitive resources and areas from adverse affects of surface-disturbing activities and human presence, and are inclusive of the various management actions developed in and analyzed for each alternative. These restrictions apply to all types of activities, and land and resource uses and are applied in accordance with the Wyoming BLM Surface Disturbance Mitigation Measures (Appendix C-1).

Surface disturbance restrictions for wildlife protection are found in Table 3.

TABLE 3

RESTRICTIONS FOR SURFACE-DISTURBANCE ACTIVITIES IN CRUCIAL WILDLIFE HABITATS

Affected Area	Restriction	Restricted Area	Approximate Acres Restricted
Big Game Crucial Winter Ranges	Nov. 1 - April 30	Antelope, elk, moose, and mule deer crucial winter ranges	398,170 to 762,056
Elk Calving Areas	May 1 - June 30	Designated calving area	56,080
Sage Grouse Nesting Areas	Feb. 1 - July 31	Up to 2-mile radius of lek	Up to 256,000
Golden Eagle Nest	Feb. 1 - July 31	Within one-half mile radius	Acreage will vary annually as active nest locations change.
Osprey Nest	Feb. 1 - July 31	Within one-half mile radius	
Swanson Hawk Nest	Feb. 1 - July 31	Within one-half mile radius	
Ferruginous Hawk Nest	Feb. 1 - July 31	Within one mile radius	
Coopers Hawk Nest	Feb. 1 - July 31	Within one-half mile radius	
Burrowing Owl Nest	Feb. 1 - July 31	Within one-half mile radius	
Merlin Nest	Feb. 1 - July 31	Within one-half mile radius	
Other Raptors	Feb. 1 - July 31	Within one-half mile radius	
Riparian Habitat	No surface disturbance	Within 500 feet	7,138
Elk Feedgrounds	No surface occupancy	Feeding sites and buffer areas	20,720
Sage Grouse Leks	No surface occupancy (Conditional - see Appendix C-1)	Leks and buffer areas	9,375
Rock Creek ACEC	No surface occupancy	ACEC	5,264

No surface occupancy would be allowed on elk feedgrounds (approximately 20,720 acres).

No surface occupancy would be allowed in the Rock Creek ACEC (approximately 5,264 acres) unless activities would benefit the Colorado River cutthroat trout habitat.

No activity or surface disturbance would be allowed from May 1 through June 30 in elk calving areas (approximately 56,080 acres).

Sage grouse leks and related nesting areas would be protected in accordance with Wyoming BLM surface-disturbance mitigation measures (Appendix C-1). Approximately 9,400 acres surrounding sage grouse leks and 256,000 acres of nesting areas would be subject to these mitigating measures.

Seasonal restrictions would be applied to active raptor nests . A current inventory of the raptor nest locations would be maintained in the resource area. Priority for such inventory would be given to areas where activities and surface disturbance are proposed.

No surface disturbance would be allowed within 500 feet of riparian habitat, wetland, and(or) live water unless a high potential for successful rehabilitation exists or impacts would be temporary in nature.

No surface disturbance would be allowed on the Upper Green River special recreation management area (approximately 2,780 acres).

No surface disturbance would be allowed within one-quarter mile or the visual horizon (whichever is closer) of significant segments of historic trails (up to approximately 11,200 acres).

Surface disturbances would not be allowed within one-quarter mile of developed and semi-developed recreation sites unless activities were determined to be compatible with recreation objectives for the area.

Air Quality Management

Objective

Air quality would be maintained at present levels, or enhanced where possible, through cooperative management of emissions with industry, the State of Wyoming, and other federal agencies. Objectives would include the protection of health and safety of the public and the well-being of sensitive natural resources. The Bureau would strive to minimize, within the scope of its authority, any emissions which may add to acid rain, cause violations of air quality standards, or degrade visibility. Specific guidance for the application of air quality protection measures is found in Appendix C-2.

Actions

The BLM would continue to: operate the National Atmospheric Deposition Program/National Trends Network acid rain monitoring site; collect basic climate and meteorological data from remote automatic weather stations; and cooperate and coordinate with the Forest Service, Environmental Protection Agency, and State of Wyoming in monitoring for atmospheric deposition (acid rain) and its impacts on the Class I airsheds of the Bridger and Fitzpatrick wilderness areas.

The collected data would be used to determine actual or potential impacts from air pollutant emissions and to provide information on proposed emission sources during the permitting process.

Special requirements to alleviate air quality impacts would be included on a case-by-case basis in use authorizations (including lease stipulations). Examples of such requirements would include: limiting emissions, spacing of source densities, requiring the collection of meteorological data, covering conveyors at mine sites (to lower dust emissions), and placing restrictions on flaring of natural gas (to reduce sulfur emissnce would be minimized.

Minerals Management

Objective

The public lands and federal mineral estate would be made available for orderly and efficient development of mineral resources. All minerals actions would comply with the goals, objectives, and resource restrictions (mitigations) required to protect or maintain the other resource values in the planning area. These goals, objectives and resource restrictions vary among the alternatives in keeping with the intent of each alternative.

Actions

Leasable Minerals. The leasable minerals include oil, gas, coal, oil shale, and geothermal steam. Only oil and gas are considered in detail in the alternatives because the potential for development of the other leasable mineral resources is low and unlikely to occur in the foreseeable future. Generally, the resource area would be open to exploration for all leasable minerals in accord with all applicable provisions (e.g., restrictions, prohibitions, etc.), of each alternative. Proposals for leasing and development (other than oil and gas) would be considered on a case-by-case basis, and any necessary amendment to the RMP would be made.

Oil and Gas. In the Scab Creek area, about 7,636 acres with moderate oil and gas potential would be closed to leasing. All other public lands not specifically closed would be open to consideration for leasing, exploration and development of oil and gas. Any decisions reached in the RMP that would affect oil and gas leasing or restrict oil and gas exploration and development activities are subject to valid existing rights. Once an oil and gas lease has been issued, it constitutes a valid existing right and BLM cannot unilaterally change the terms and conditions of a lease. Therefore, in each alternative where consideration is given to restricting oil and gas activities or closing an area to oil and gas leasing, an existing lease would not be affected and the restriction or closure could not be fully implemented until after a lease expires and new leases are issued for the same area. However, restrictions can be applied at the Application for Permit to Drill (APD) stage that would mitigate potential impacts from oil and gas operations within areas with existing leases (Appendices C-2 and C-3).

The BLM would evaluate industry-proposed measures to protect health and safety through the lease and permit process (Appendix C-3). Of particular concern would be the requirements of approved hydrogen sulfide (H_2S) release contingency plans. In cases of special circumstances, such as areas with high potential for (H_2S) near population centers, special measures for proposed wells, would be required. These could include requiring operators to conduct dispersion analyses to determine worst-case ambient H_2S concentrations during well blowouts, collecting onsite meteorological data, preparing detailed evacuation plans, and placing offsite warning signs.

Waste disposal (e.g., drilling fluids, trash, and sanitary facilities) would be prohibited on floodplains, wetlands, and related riparian zones (26,220 acres).

Geophysical Exploration. An estimated 300 miles of geophysical exploration, predominantly for oil and gas information, would occur each year for about 20 years. This exploration would primarily occur in high oil and gas potential areas (Map 2). Geophysical exploration techniques may vary due to protection measures necessary to protect other resources. Specific geophysical methods are described in Appendix C-3. In the Scab Creek area, about 7,636 acres would be closed to geophysical activities.

Coal. Coal exploration would be allowed under the guidance established for surface-disturbing activities presented in Appendix C-2. If an application for a coal lease is received sometime in the future, an appropriate land use and environmental analysis, including the coal screening process, would be conducted to determine whether the coal areas applied for are acceptable for development and for leasing consideration. The RMP would be amended as necessary.

Coal leasing and development is not an issue for the RMP. The coal in this area of Wyoming has either unknown or low-development potential in the foreseeable future. No leasing and development interest was identified during the call for coal resource information, the issue identification process, or the alternative formulation process. Therefore, the coal screening process, including application of the coal unsuitability criteria, has not been conducted. This does not imply, however, that coal exploration, leasing, and development is incompatible with this plan.

With the exception of a small portion of northern Lincoln County, the federal coal lands in the Pinedale Resource Area (Map B) are not within a designated coal production region. Federal coal leasing in areas outside of designated regions may be considered apart from the competitive leasing process set out in 43 CFR 3420.3 through 3420.5-2. This is essentially done on a case-by-case basis, called "leasing on application," under the appropriate provisions of 43 CFR 3425. Sale and issuance of federal coal leases under these provisions requires a competitive bidding process.

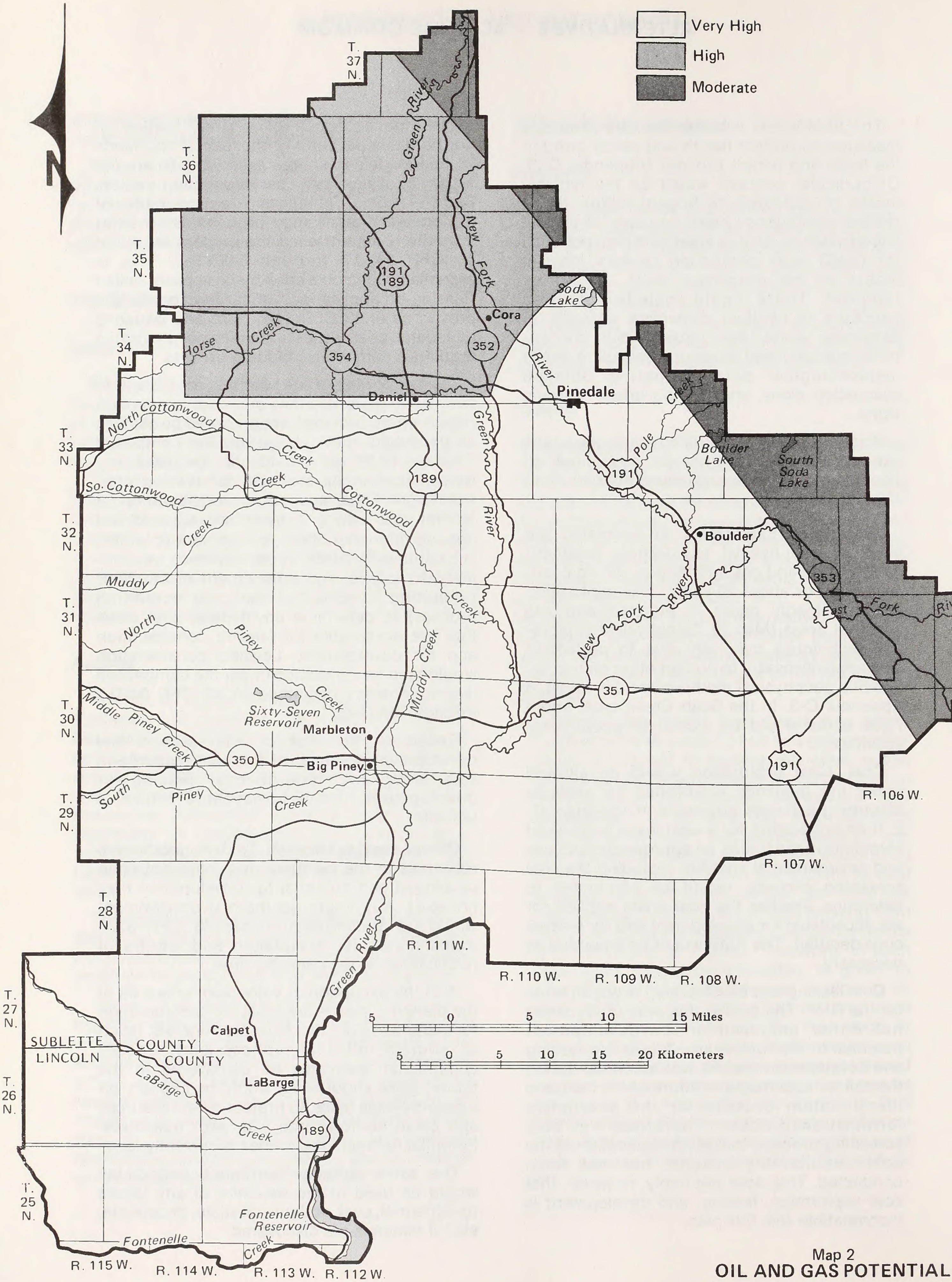
A small portion of the planning area is within the Green River-Hams Fork coal production region where coal exploration would be allowed as described above. However, the completed Pinedale RMP will not identify or make any federal coal lands available for leasing consideration. Thus, any future consideration of federal coal leasing in those areas would first depend upon identified development potential, substantiated interest in development, environmental analysis, and amendment of the RMP (including conduct of the coal screening process) to determine any federal coal areas that are acceptable for leasing consideration and for development. Leasing consideration would then be conducted under the competitive leasing process described in 43 CFR 3420.3 through 3420.5-2.

Based on the lack of interest and low development potential of the coal resource in this area, any federal coal leasing or development in the foreseeable future is unlikely.

Other Leasable Minerals. To date, geothermal resources in the resource area have not been developed and potential for development may not exist. Any future geothermal development would be administered under 43 CFR 3200 which allows for exploration and leasing of public lands in the planning area.

With the exception of withdrawn areas, all of the planning area is available for consideration for exploration of other leasable minerals, (such as sodium, oil shale, phosphate). Should commercial quantities be discovered in the future, lease stipulations would be applied, on a case-by-case basis, to protect other resources and be in conformance with plan objectives. Potential for such discoveries is currently low.

The same surface-disturbance restrictions would be used in the issuance of any leases (geothermal, coal, sodium, oil shale, phosphate, etc.) if minerals are discovered.



Map 2
OIL AND GAS POTENTIAL
Pinedale Resource Management Pla

Locatable Minerals

With the exception of withdrawn lands, the area generally would be open to mineral location. Discretionary management for locatable minerals is limited. The regulations in 43 CFR 3809 provide for management of public lands to prevent unnecessary and undue degradation. Resources needing protection from locatable mineral activities would be considered for withdrawal. Areas of Critical Environmental Concern require a plan of development for any activities in accordance with 43 CFR 3809.

Based on the lack of interest and low development potential of locatable minerals in this area, any mineral location or development in the foreseeable future is unlikely.

Salable Minerals

Salable mineral (e.g. sand and gravel) permits would be processed on a case-by-case basis and would be subject to mitigation requirements for the protection of other resource values. Established common use areas in Secs. 15 and 22, T. 27 N., R. 115 W., would remain available for development. Management discretion would be used in selecting new sites consistent with the RMP.

Natural History and Paleontological Resources Management

Objective

Natural history and paleontological resource values would be protected based on specific sensitivity and mitigation criteria. Scientific collection, recreational collection, and educational or interpretive activities would be potential uses. As areas of unique natural history or particular natural interest are identified, they would be designated as natural areas and managed for protection of the unique values. Interpretation of the natural features and public use would be emphasized.

Actions

Paleontological resources would be classified in terms of the sensitivity levels: Critical, Significant, Important, Insignificant, and Unimportant. Any actions to close or restrict areas for fossil protection would be evaluated on a case-by-case basis. No areas have been classified to date.

Management of Critical areas would not allow any action which would damage the fossil resource or alter the contextural relationships of fossil materials. Materials may be removed only under a special permit.

Depending on the size of the deposit, approved mitigation for Significant areas may include total salvage or may be limited to a statistically valid sample of all forms present.

In Important areas, a statistically valid sample would be obtained to mitigate any adverse impact on the resources.

Mitigation would be optional in Insignificant areas.

No mitigation would be necessary in Unimportant areas.

Soils Management

Objective

Present objectives center on soil conservation planning for surface disturbance actions. Soil conservation is addressed during the initial phase of any soil-disturbing action; therefore, soil productivity and stability levels can be maintained through the application of existing techniques. Some areas require more intensive soil conservation practices than others; however, this is a function of the type and duration of the action and the effect on site-specific soil characteristics.

Actions

Soils would be evaluated on a case-by-case basis for projects initiated on public lands.

Standard practices relating to surface-disturbing activities would support soil conservation and erosion control. Generally, soil management practices would be applied on a site-specific basis using soil survey data and would be related to the soil characteristics such as the steepness of slopes, the length of slope, soil chemistry, and composition.

Examples of standards applied throughout the resource area based on these soil management criteria are:

> Seasonal closures due to saturated soil conditions: At certain times of the year, when soil resource damage will occur due to saturated soil conditions, use will be precluded until soil moisture is such that use will not degrade the soil resource. These closures occur predominately in the spring and autumn.

The standard practices applied to surface-disturbing activities (Appendix C-2).

Watershed Management

Objective

Management objectives would be to maintain or enhance the quality of surface and ground water. Watersheds would be managed to maintain or improve channel stability and overall watershed conditions.

Actions

Management would emphasize the reduction of soil erosion and sediment and salinity contributions to the Green River basin water system. Practices applied to surface-disturbing activities which would help in achieving this objective are found in Appendix C-2. Of particular importance would be those areas with highly saline soils such as the Soap Holes Basin (approximately 1,992 acres), and crucial watersheds where surface disturbance would be minimized. These crucial watersheds are generally found within the boundaries of the ground water recharge zones (Map 3).

A Level II ground water study of the Riley Ridge/LaBarge area would be completed to define the ground water resource and to determine ground water contamination due to subsurface activities such as oil and gas exploration and development.

A monitoring program for specific surface waters would be initiated and conducted on an annual basis to develop trends on water quality. Recreational drinking water would also be protected and monitored to be in compliance with EPA safe-drinking water standards.

Ground water quality would be protected by minimizing surface disturbance on ground water recharge zones (Map 3). Ground water protection from activities such as oil and gas exploration and development would continue to be provided by applying the procedures described in Appendix C-3. Criteria for determining depth of fresh water are found in Appendix C-4.

All actions would comply with Executive Orders 11988 Floodplain Management, and 11990 Protection of Wetlands.

Wildlife Habitat Management

Objective

Wildlife habitat would be managed in accordance with National and State laws and regulations to continue to provide habitat for wildlife species.

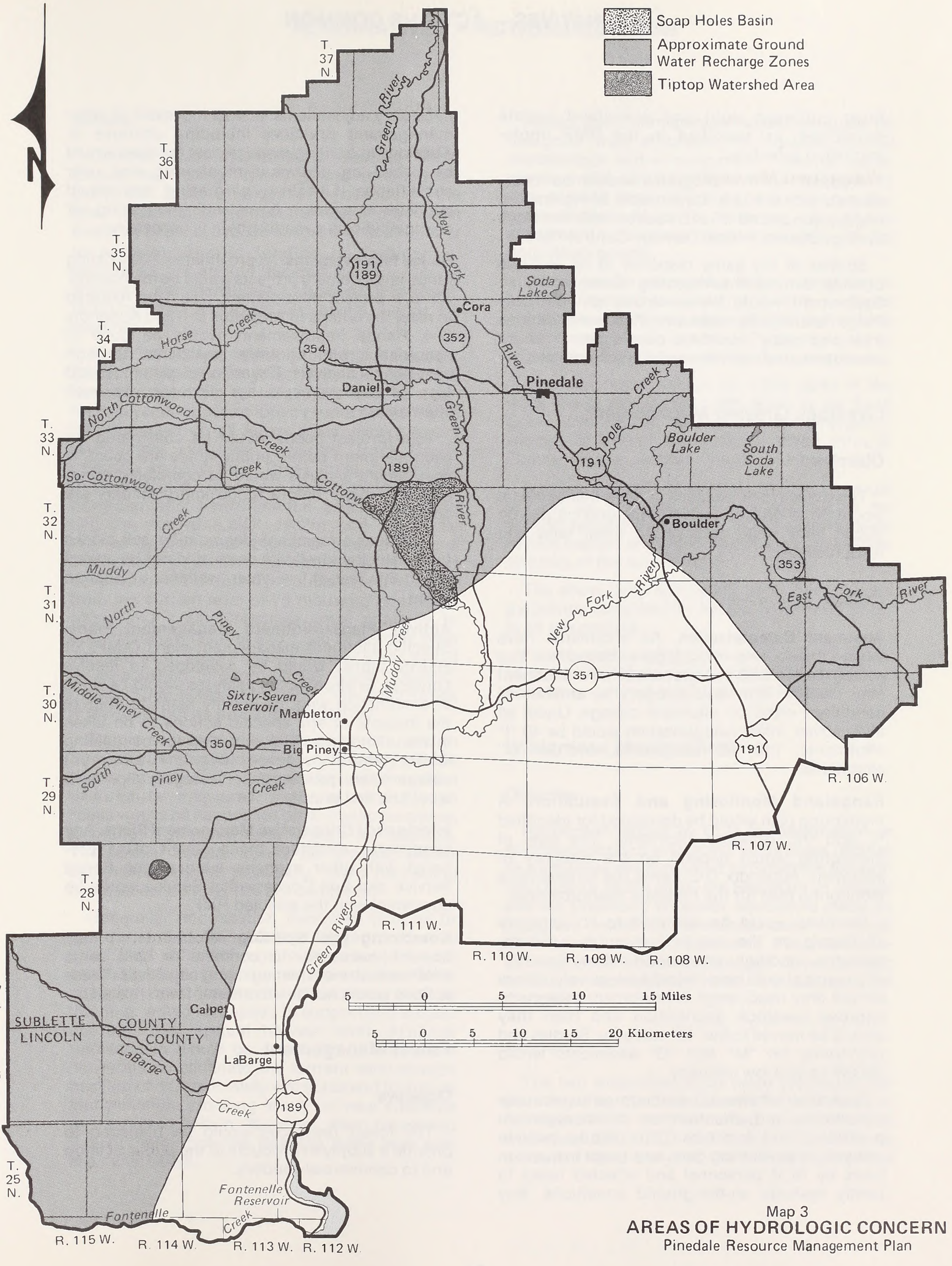
Actions

Threatened and endangered species and their habitats would be protected. The U.S. Fish and Wildlife Service (USFWS) would be consulted on any action with reasonable potential to affect endangered species or their habitats. A biological assessment would be prepared on all proposals where T&E habitat would or may be affected and a biological opinion would be issued by the USFWS. Actions which would degrade species habitat to a point of jeopardizing the continued existence of a species would not be allowed. All actions would include consideration for threatened and endangered species (plants and animals).

Potential habitat for T&E species would continue to be inventoried. Identification of habitat occupied by T&E species and habitat with potential to help support these species would be managed in accordance with the national recovery plans. Potential habitat includes high density prairie dog towns for black-footed ferrets, wetlands for whooping cranes, high cliffs over riparian zones for peregrine falcons, and cottonwood stands along the Green and New Fork Rivers for bald eagles. Management prescriptions for potential habitat would include consideration for future occupancy by threatened or endangered species. Key habitat characteristics would be identified to help ensure maintenance of high quality areas for natural reoccupation. Reintroductions of T&E species on BLM-administered lands would be analyzed, considering the impact of other activities. No T&E plants have been identified in the resource area.

Habitat occupied by federally listed T&E species and the Colorado River cutthroat trout (a Category 2 species) would be monitored to ensure compliance with the Endangered Species Act.

The East Front Aquatic Habitat Management Plan would be implemented to promote riparian habitat management and protect the Colorado



Map 3
AREAS OF HYDROLOGIC CONCERN
Pinedale Resource Management Plan

River cutthroat trout and a wetland update developed, as specified in the HMP implementation schedule.

Predator control programs would be coordinated with the U.S. Department of Agriculture and be conducted in accordance with the Rock Springs District Animal Damage Control Plan.

Studies of big game response to oil and gas development by the Wyoming Game and Fish Department would be continued on the Riley Ridge natural gas project area. Recommendations from this study would be considered in future development of minerals on big game ranges.

Livestock Grazing Management

Objective

The objective of livestock grazing management would be to provide for livestock grazing use on public land while considering other land and resource uses.

Actions

Allotment Categorization. All allotments have been placed into a category based on the established criteria in Appendix D-1. An allotment may change from one category to another as conditions within an allotment change. Under all alternatives, initial categorization would be 40 "I" allotments, 140 "M" allotments, and 26 "C" allotments.

Rangeland Monitoring and Evaluation. A monitoring plan would be developed for identified "I" and "M" category allotments. The level of monitoring would depend on the category of allotment. Appendix D-2 shows the criteria for a monitoring plan for the Pinedale Resource Area.

Priorities would be assigned to "I" category allotments on the basis of resource conflicts, resource condition, and opportunities. Some "I" allotments should be monitored intensively; others should only need range improvement projects to improve livestock distribution and then they should be moved to the "M" category. Studies and monitoring on "M" and "C" allotments would mostly be of a low intensity.

Each allotment would be monitored for resource conditions, and effectiveness of management practices, and facilities. This would include analysis of monitoring data, and range inspection tours by BLM personnel and affected users to jointly evaluate on-the-ground conditions. Any necessary adjustments in stocking levels or other management practices including changes or additions to existing management facilities would be based on allotment monitoring and user consultation. Licensing of grazing use would continue at existing levels until monitoring, or change indicate a modification is necessary.

Range Improvements. Approximately 800 existing range improvement projects would be maintained. All new project development would be required to meet the criteria in Appendix D-3 and Appendix D-4. Range improvements would be done in accordance with priorities established through cost/benefit analysis. The anticipated number and type of improvements are discussed in each alternative.

Total project needs would be considered for each allotment before public funds are spent. A cost/benefit analysis would be completed on an allotment basis before range improvements are constructed.

To reduce streambank degradation, salt blocks for livestock and wildlife use would not be placed within 500 feet of live water, wetland, or riparian areas.

Activity Plans/Allotment Management Plans. Specific allotment management plans (AMPs or activity plans) would be developed to resolve conflicts. Environmental analyses would be done in conjunction with the activity plans to analyze the impacts of any specific actions to be taken in the allotments. The priorities for completing AMPs would coincide with the allotment categorization process e.g. "I" category allotments would be first priority.

Interagency Cooperative Management Plans. Any cooperative allotment management plans prepared with other agencies such as the Forest Service and Soil Conservation Service would be consistent with the selected RMP.

Combining and Splitting Allotments. It may become necessary to combine or split some allotments to meet management objectives. These actions would not be inconsistent with this plan.

Forest Management

Objective

The forest resources would be managed to provide a supply of products to the public at large and to commercial vendors.

Actions

General forest management activities would include harvesting, thinning, and reforestation activities. Each alternative is based on the assumption that implementation funding would be available and that needed access is acquired (refer to Access). Should funding be reduced or eliminated, or should needed access not be acquired, commensurate reductions in harvest, thinning, and reforestation levels would be required.

Sales of minor forest products (firewood, Christmas trees, posts, poles, and wildlings) would be made available to individuals and to commercial vendors. Minor forest product sales would be conducted on all forest areas, except where specifically excluded (e.g., the Rock Creek drainage and the Scab Creek area). Mitigations to protect other resources were developed in a programmatic environmental assessment and decision record (USDI 1982b) and would be applied to each sale. Based on past trend and anticipated population growth, the estimated demand for minor forest products would increase from the current level of 75 thousand board feet (mbf) and 1,000 Christmas trees annually to approximately 125 mbf and 1,500 Christmas trees annually in 10 years. Specific harvest areas would be established through activity plans. Approximately 5,998 acres of timber in the Scab Creek area would not be available for harvest.

Timber access roads would be constructed to the minimum standard necessary to safely remove timber and would be consistent with surface disturbance measures. However, where such roads would be needed for other public purposes, a higher road standard would be applied. Temporary roads would be closed, either administratively or physically, once harvesting and associated activities are completed.

Generally, reforestation measures (natural or artificial) would be applied to logged or burned areas until sufficient regeneration would assure adequate stocking for the next forest crop. Other intensive forest management practices, such as thinning, would be applied to support and sustain the approved annual harvest level. Artificial reforestation would be conducted to the extent necessary to eliminate the current reforestation backlog of approximately 460 acres and to ensure that minimum stocking levels on new clearcuts are achieved within 10 years after harvesting (USDA 1984). Specific thinning levels vary with each alternative.

Aspen stand management would generally be designed with emphasis on wildlife habitat maintenance and enhancement; however, aspen stands would also be utilized for wood products on a demand basis. The demand for aspen is low, approximately 10 to 15 cords per year and is anticipated to increase commensurately with the population growth.

Other than for emergency salvage of damaged or dead trees and for public protection, no forest product harvesting would be allowed in the Scab Creek campground (30 acres). Campers would be allowed to obtain firewood from designated areas.

All forest lands, except for 1,502 acres in the Rock Creek ACEC and 5,998 acres in the Scab Creek area, would be available for emergency salvage of timber damaged or killed through insects, disease, wildfire, or other such events.

Acreage allocations in each alternative would provide for retention of old growth timber for wildlife species dependent on old growth, such as pine marten, and would add to the successional diversity of the timber types.

The silvicultural harvesting and environmental guidelines described in Appendix E would apply to all alternatives.

Forest management plans would be prepared as needed to implement the forest management objectives outlined in the selected RMP.

Wilderness Management

Objective

Recommendations by BLM for designation or nondesignation of wilderness study areas (WSAs) as wilderness are submitted to Congress through the Director of the BLM, the Secretary of Interior and the President. Whatever decision is made by Congress would be considered common to all alternatives in this document. Proposed wilderness areas would be managed for wilderness values in accordance with the decision of Congress.

Actions

The two wilderness study areas (WSAs) in the planning area, the Scab Creek WSA and the Lake Mountain WSA, were evaluated in two previous wilderness EISs (USDI 1981b and USDI 1983). As a result of these analyses, the BLM recommended the Scab Creek WSA for designation as wilderness and the Lake Mountain WSA for nondesignation as wilderness. Both recommendations are pending further processing and Congressional decision. Whatever Congress decides will be incorporated into the approved Pinedale RMP. Until Congress acts, these WSAs would be managed under the interim wilderness management policy.

If Congress should designate one or both of the WSAs (partially or wholly) as wilderness, the management of the designated areas would be for wilderness values and as described in the appropriate wilderness EIS. If Congress should not designate one or both areas (partially or wholly) as wilderness, the management of the nondesignated areas would be in accordance with the selected and approved Pinedale RMP. Thus, the alternatives addressed and analyzed in this RMP/EIS include multiple use management alternatives covering both of the WSAs along with the rest of the planning area. In so doing, the two WSAs lose their identity and the WSA boundaries are immaterial.

No other potential wilderness areas to be evaluated in this RMP/EIS have been identified.

Off-Road Vehicle (ORV) Management

Objective

ORV uses would be provided for within the constraints established by other resource uses or values.

Actions

The existing ORV designations on portions of the planning area would remain in effect under all alternatives (Map 4). Under all alternatives, the remainder of the area would be classified as either open, closed, or limited and related acreages would vary among alternatives.

Recreation Management

Objective

The objective of recreation management would be to to provide for continued recreation use.

Actions

Dispersed recreation uses (e.g., hunting, fishing, river rafting and canoeing, lake boating, swimming, camping, backpacking, horsepacking, rock climbing, cross-country skiing, sightseeing, and general photography) would continue.

Existing recreation areas would receive priority for development prior to implementing new projects or developing any new recreational areas. The order of priority would be as follows: 1) Congressionally designated areas, 2) major rivers and lakes where BLM has clear jurisdiction, 3) areas with outstanding recreation resource values not already provided for in the area, and 4) areas where the recreation capacity is regularly exceeded threatening significant resource values.

Special recreation permits would be required for commercial uses and major competitive recreation events. Mitigations would be developed to ensure the protection of other resources in accordance with resource management goals.

Developed recreation facilities receiving the heaviest use would receive priority for maintenance funds. Undeveloped areas would be funded for development dependent upon the level of demand; high demand areas would receive priority if recreation objectives could not be attained without development.

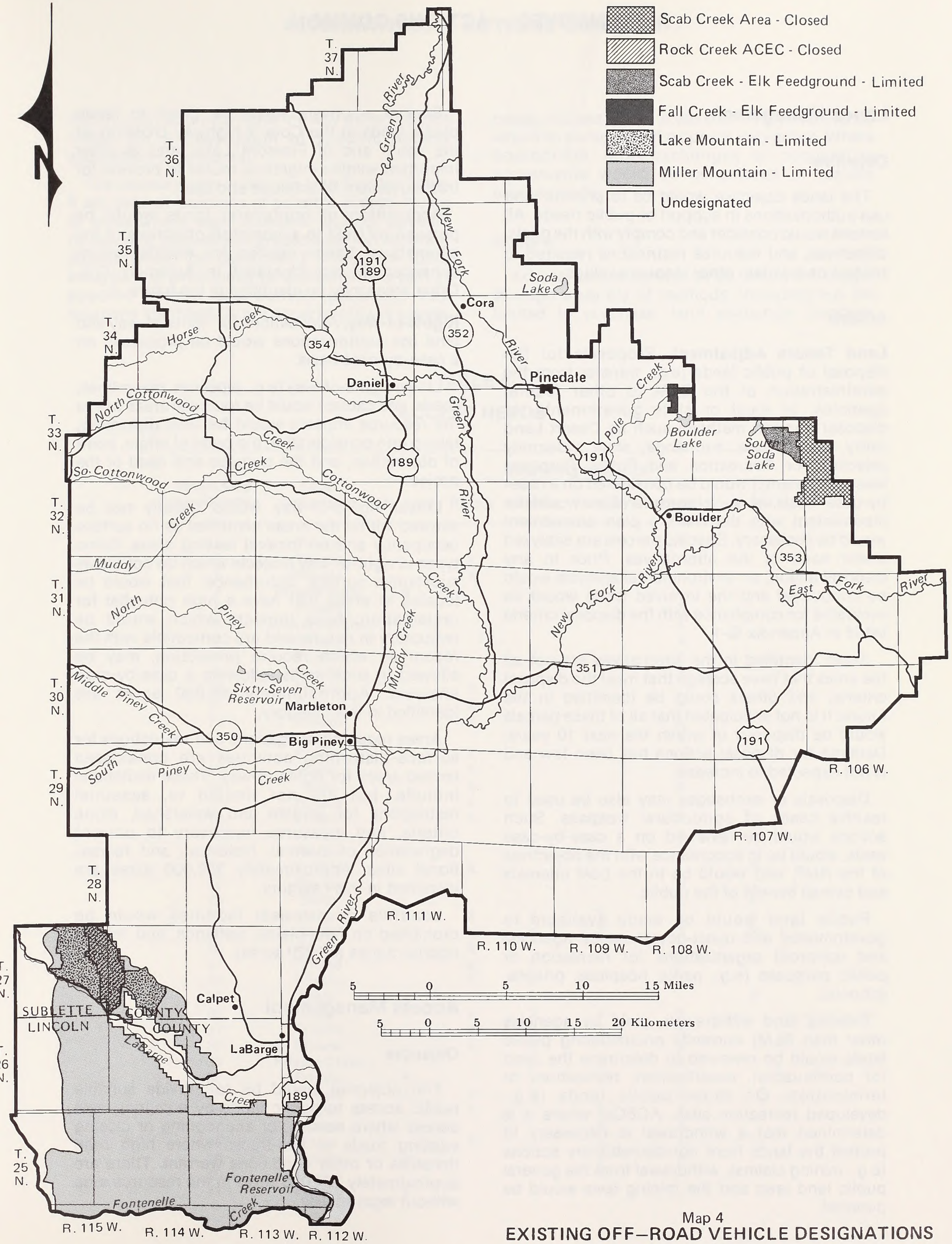
The Green and New Fork Rivers would be managed to provide optimum fishing and floatboating opportunities. Necessary facilities would be developed to provide for protection of users and the resources.

Boulder Lake would be established as a special recreation management area and related recreation facilities would be developed to improve public access and use opportunities.

Cultural Resource Management

Objective

The various uses of the public lands would be managed to avoid damage to cultural resources on lands administered by BLM; minimize conflicts between uses of cultural resources and other uses of the public lands; provide for appropriate mitigation of unavoidable adverse effects on cultural resources prior to their disturbance or destruction; and identify and protect cultural resources. The management process is depicted in Appendix F.



Map 4

EXISTING OFF–ROAD VEHICLE DESIGNATIONS

Pinedale Resource Managment Plan

Lands Management

Objective

The lands objective would be to provide land use authorizations in support of public needs. All actions would consider and comply with the goals, objectives, and resource restrictions required to protect or maintain other resource values.

Actions

Land Tenure Adjustment. Proposals for the disposal of public lands (e.g., transfer from the administration of the BLM to other federal agencies, or local or state governments, or disposal through methods such as Desert Land Entry, public sale, exchange, state indemnity selection, or Recreation and Public Purposes leases or patents) would be considered on a case-by-case basis. If such consideration would be inconsistent with the RMP, a plan amendment would be necessary. Specific parcels are analyzed under each of the alternatives. Prior to any disposal action, an environmental analysis would be conducted and the involved lands would be evaluated for compliance with the disposal criteria listed in Appendix G-1.

Areas identified in the alternatives are not all the areas that have acreage that meet the disposal criteria, and others could be identified in the future. It is not anticipated that all of these parcels would be disposed of within the next 10 years. Demand for disposal actions has been low and is not expected to increase.

Disposals or exchanges may also be used to resolve cases of agricultural trespass. Such actions would be reviewed on a case-by-case basis, would be in accordance with the objectives of the RMP, and would be in the best interests and overall benefit of the public.

Public land would be made available to governmental and quasi-governmental agencies and nonprofit organizations for recreation or public purposes (e.g., parks, hospitals, prisons, schools).

Existing land withdrawals (held by agencies other than BLM) currently encumbering public lands would be reviewed to determine the need for continuation, modification, revocation, or termination. On those public lands (e.g., developed recreation sites, ACECs) where it is determined that a withdrawal is necessary to protect the lands from nondiscretionary actions (e.g., mining claims), withdrawal from the general public land laws and the mining laws would be pursued.

Special emphasis would be given to retain public lands at the Cora Y highway crossing, at the south end of Fremont Lake, and at other important wildlife migration routes to provide for free movement of antelope and deer.

Acquisition of nonfederal lands would be pursued by BLM to accomplish objectives of the alternatives. Lands needed for wildlife habitat enhancement are identified in Appendix G-2. Other areas may be identified in the future.

Rights-of-Way. Applications for rights-of-way and land use authorizations would be processed on a case-by-case basis.

Linear rights-of-way (e.g., pipelines, powerlines, roads, and cables) would be routed in areas where the resource impacts would be least disturbing, taking into consideration the point of origin, point of destination, and the purpose and need of the project.

Linear rights-of-way would usually not be allowed within the areas identified as no surface occupancy and no mineral leasing areas. Some types of right-of-way projects which do not create substantial surface disturbance; that would be located in areas that have a high potential for reclamation; have impacts which would be temporary in nature; and are compatible with the resources which require protection, may be allowed in such areas following a case-by-case analysis. Approximately 43,000 acres are identified in this category.

Areas requiring mitigations and restrictions for surface-disturbing activities are considered limited areas for rights-of-way. These limitations include, but are not limited to, seasonal restrictions for wildlife and watershed, slope criteria, and measures necessary to prevent degradation of cultural, historical, and recreational sites. Approximately 359,000 acres are identified in this category.

Landfills or disposal facilities would be prohibited on floodplains, wetlands, and related riparian zones (26,220 acres).

Access Management

Objective

The objective would be to provide suitable public access to public lands by acquiring new access where needed, or abandoning or closing existing roads or two-tracks where high road densities or other conditions warrant. There are approximately 124,000 acres in the resource area without legal access.

nation, and reciprocal rights-of-way (refer to USDI 1985b for a description of specific access acquisition procedures).

The access needs shown on Map 5 and in Table 4 are general locations of possible access routes or areas where legal access is lacking. Specific routes and acquisition procedures for securing access would be determined through a route analysis and environmental assessment as part of specific project and activity planning. The locations identified do not show priority of access needs. Access across areas involving private lands would be pursued as the opportunity arises. Where appropriate, land exchanges or cooperative agreements would be considered to resolve access needs.

Actions

Access across private lands would be sought through a variety of methods, including but not limited to purchase, land exchange, condem-

TABLE 4

ACCESS NEEDS

Road/Area Identification	Land Ownership	Benefitting Resource					
		Minerals	Range	Wildlife	Forestry	Recreation	Lands
1	Private					X	
2	Private		X				
3	Private		X				
4	Private/State	X		X			
5	Private					X	
6	Private/State					X	
7	Private					X	
8	Private			X		X	
9	Private					X	
10	Private		X				
11	Private		X			X	
12	Private		X			X	
13	Private/State					X	
14	Private		X				
15	State		X			X	
16	State		X			X	
17	Private		X			X	
18	Private		X	X	X	X	
19	Private					X	
20	Private					X	
21	Private		X				X
22	Private					X	
23	State					X	X
24	State	X	X	X	X	X	X
25	State	X	X	X	X	X	X
26	Private		X				
27	Private		X	X		X	
28	Private		X	X		X	
29	State	X					X
30	State	X	X	X	X	X	
31	Private		X	X	X	X	
32	Private		X	X		X	
33	Private/State	X		X	X	X	
34	Private	X		X	X	X	
35	Private	X	X	X	X	X	
36	State		X		X	X	
37	Private				X	X	
38	State		X		X	X	
39	Private	X			X	X	
40	Private				X		
41	Private	X					

TABLE 4 (Continued)
ACCESS NEEDS

Road/Area Identification	Land Ownership	Benefitting Resource					
		Minerals	Range	Wildlife	Forestry	Recreation	Lands
42	Private		X	X	X	X	
43	Private		X			X	
44	Private					X	
45	Private		X		X	X	
46	Private		X			X	
47	Private		X	X	X	X	
48	Private	X					
49	Private	X	X	X	X	X	
50	Private		X		X	X	
51	Private	X				X	
52	Private		X	X	X	X	
53	Private		X				
54	Private		X			X	
55	Private		X			X	
56	Private		X	X	X	X	

Roads. There are about 1,866 miles of road in the area, of which approximately 906 miles are on public lands.

Road closure and abandonment would be considered and established through an activity plan or environmental assessment process. Road closure and abandonment would be based on desired road densities; demands for new roads; closure methods (e.g., abandonment and rehabilitation, closures by signing, temporary or seasonal closures); type of access or roads needed; resource development or protection needs; and existing uses.

A detailed evaluation of high density roaded areas in the area would be completed to determine needs for specific road closures and(or) rehabilitation. Priority areas would include the Red Canyon, Red Castle Creek, and Fish Creek areas, as well as oil and gas fields in the southwestern portion of the resource area.

Fire Management

Objective

The fire program would be managed to protect public safety, life, and property while providing the maximum benefits of fire to overall resource management.

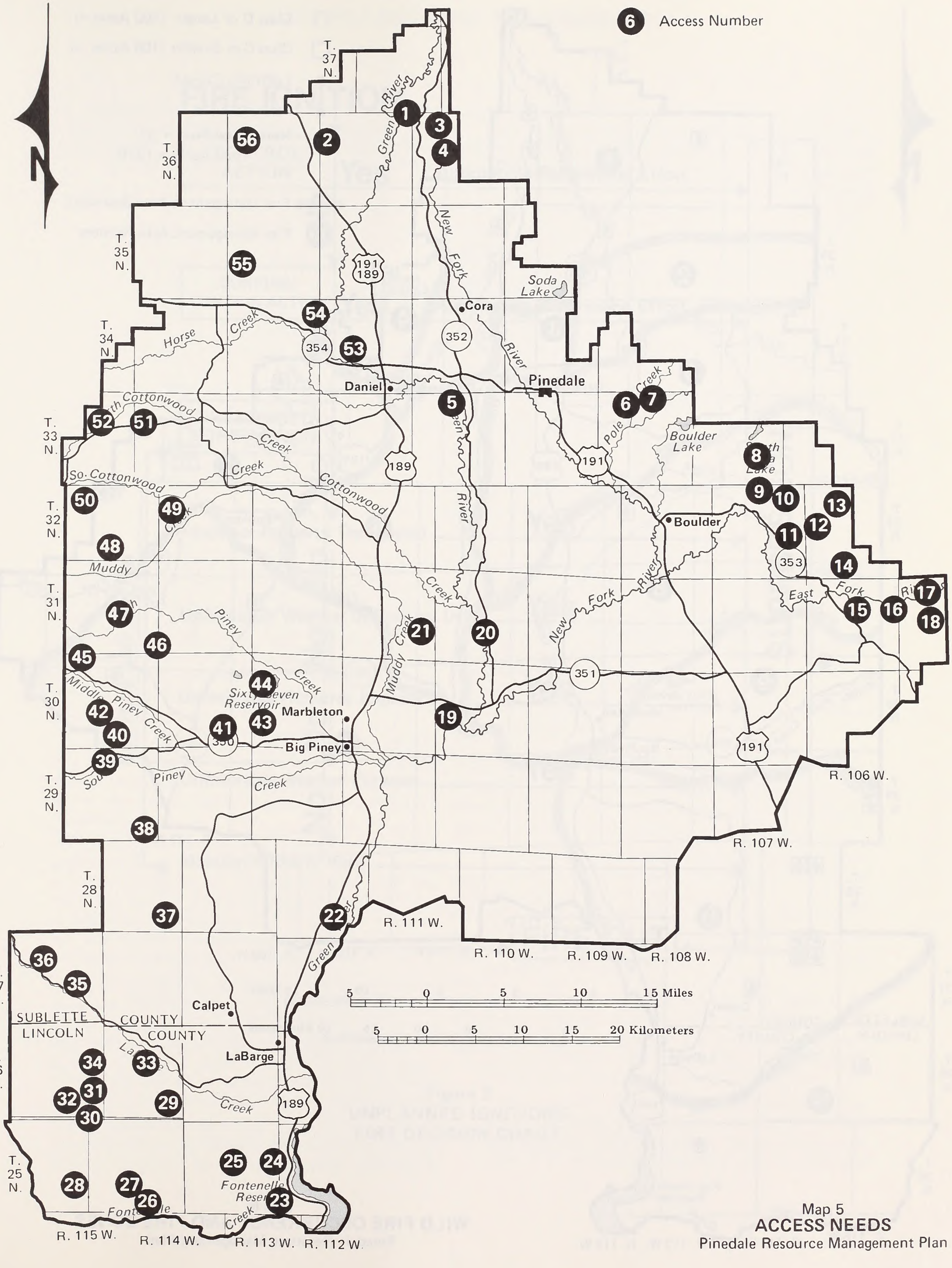
Actions

Fire would be considered a management option for vegetation manipulation to 1) convert brush to desired species, 2) rejuvenate desired species, 3) increase forage, 4) increase vegetation nutrient value and palatability, 5) promote habitat diversity, 6) establish vegetation type mosaic patterns, 7) improve vegetation cover on areas with insufficient protective ground cover, or 8) maintain range, wildlife habitat and watershed condition.

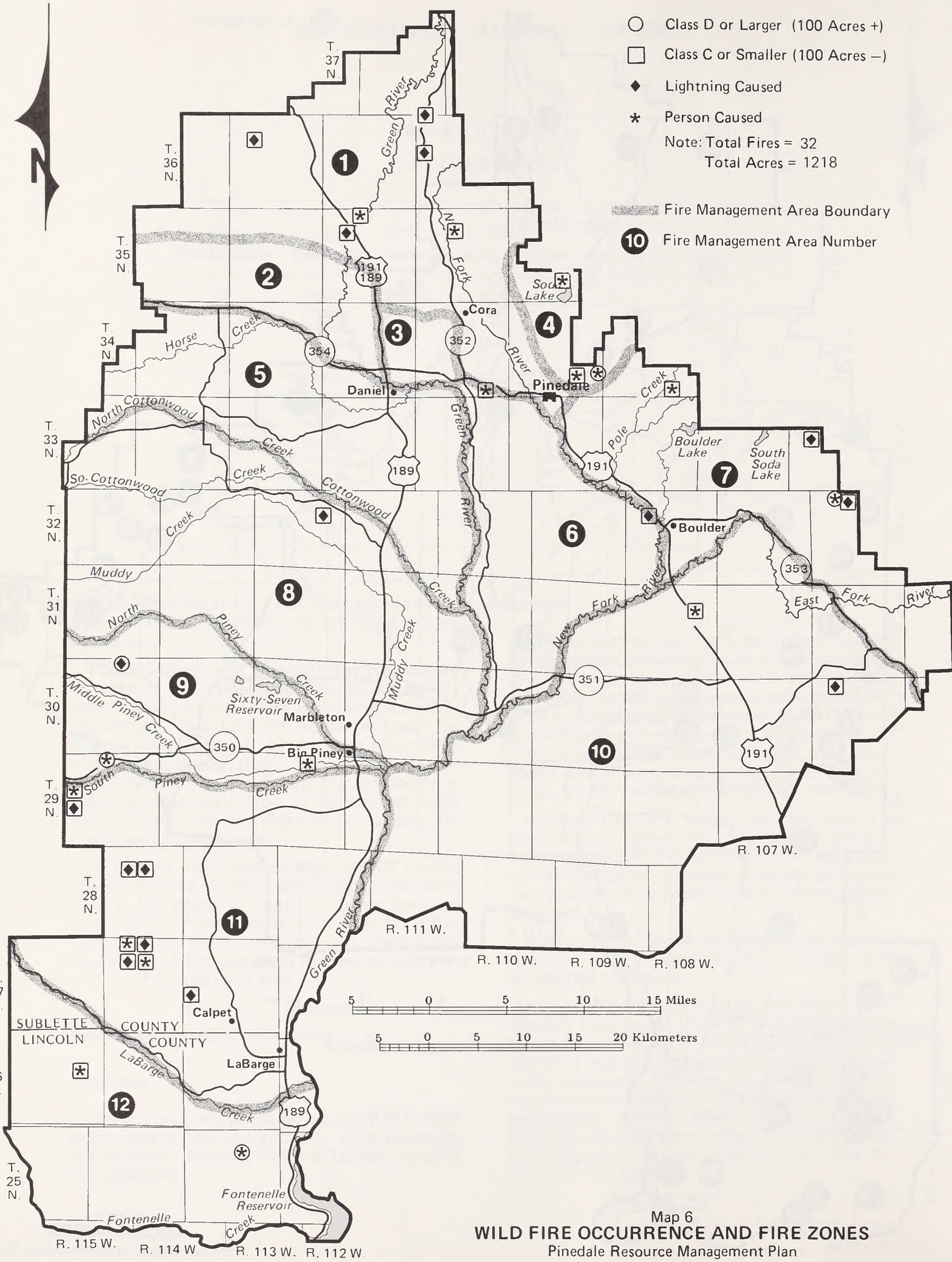
Additionally, fire would be considered a management option for disposal of product residues, seed bed preparation, hazard reduction, control of disease or insects, thinning, or species manipulation in support of forest management objectives.

Activity plans would be prepared to address specific applications in accordance with established objectives.

A fire management action plan would be written. Specific boundaries (Map 6) and prescriptions would be consistent with or in support of the identified resource values and decided management objectives. Although the fire plan would structurally be the same in all alternatives, specific prescription variables (fuel, moisture level, air temperature, etc.) would differ. The fire decision chart (Figure 2) identifies specific steps taken for all unplanned ignitions.



Map 5
ACCESS NEEDS
Pinedale Resource Management Plan



Map 6

WILD FIRE OCCURRENCE AND FIRE ZONES

Pinedale Resource Management Plan

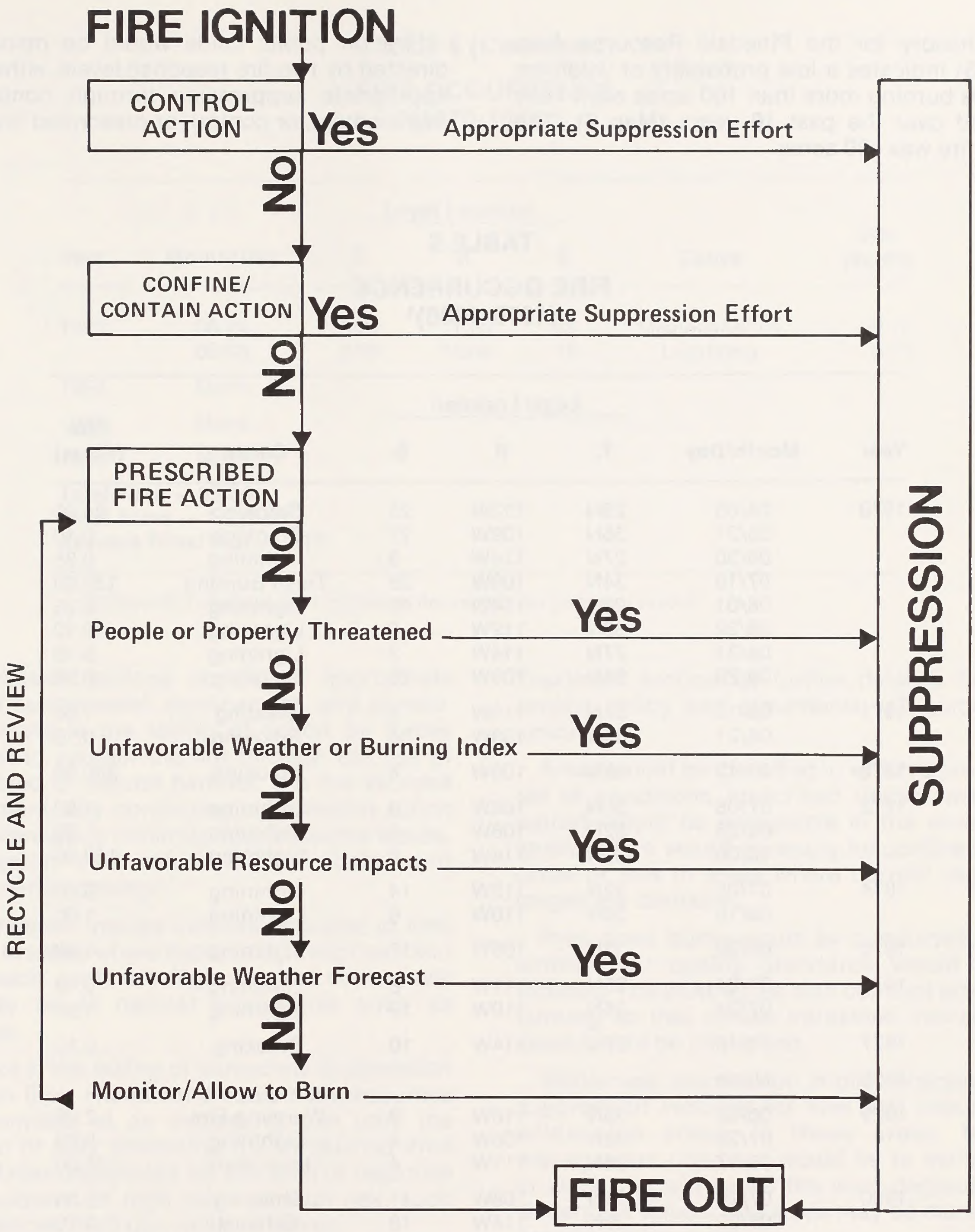

FIRE IGNITION
CONTROL ACTION
Yes
Appropriate Suppression Effort
No
CONFINE/ CONTAIN ACTION
Yes
Appropriate Suppression Effort
No
PRESCRIBED FIRE ACTION
No
People or Property Threatened
Yes
No
Unfavorable Weather or Burning Index
Yes
No
Unfavorable Resource Impacts
Yes
No
Unfavorable Weather Forecast
Yes
No
Monitor/Allow to Burn
RECYCLE AND REVIEW
SUPPRESSION
FIRE OUT

Figure 2
UNPLANNED IGNITIONS
FIRE DECISION CHART

Fire history for the Pinedale Resource Area (Table 5) indicates a low probability of wildfires; five fires burning more than 100 acres each have occurred over the past 16 years (Map 6). The largest fire was 380 acres.

Fire on public lands would be managed as directed by two fire response levels, either taking appropriate suppression through containment, confinement, or control, or prescribed fire.

TABLE 5

FIRE OCCURRENCE (1970-1986)[1]

		Legal Location				
Year	Month/Day	T.	R.	S.	Cause	Size (acres)
1970	04/05	29N	112W	23	Smoking	84.00
	05/31	35N	109W	27	Smoking	0.10
	06/30	27N	114W	9	Lightning	0.25
	07/18	34N	109W	25	Trash Burning	132.00
	08/01	29N	114W	19	Lightning	0.25
	08/22	36N	112W	8	Lightning	0.10
	08/31	27N	114W	3	Lightning	0.10
	09/29	34N	109W	26	Smoking	0.30
1971	08/15	27N	114W	4	Blasting	1.00
	08/21	34N	108W	35	Smoking	0.10
1972	08/12	32N	106W	6	Smoking	380.00
1973	07/08	30N	106W	5	Lightning	1.00
	08/28	32N	108W	8	Lightning	1.00
	10/06	30N	114W	3	Lightning	150.00
1974	07/05	32N	112W	14	Lightning	3.00
	09/18	36N	110W	6	Lightning	1.00
1975	09/22	33N	106W	17	Lightning	1.00
1976	07/04	35N	111W	8	Lightning	0.10
	07/24	36N	110W	19	Lightning	1.00
1977	11/12	27N	114W	10	Smoking	0.10
1978	None					
1979	06/05	35N	110W	9	Warming Fire	2.00
	07/28	32N	106W	4	Lightning	0.25
	09/17	35N	111W	4	Incendiary	25.00
1980	07/29	31N	108W	11	Smoking	15.00
	08/02	29N	114W	18	Exhaust	0.10
1981	07/13	25N	114W	10	Miscellaneous	280.00
	07/21	29N	114W	4	Blasting	130.00
	08/04	26N	115W	14	Miscellaneous	7.00
	08/25	28N	114W	10	Lightning	0.10
	09/05	28N	114W	9	Lightning	2.00
1982	None					

TABLE 5 (Continued)
FIRE OCCURRENCE
(1970-1986)[1]

Year	Month/Day	Legal Location T.	 R.	 S.	Cause	Size (acres)
1983	06/24	34N	110W	35	Miscellaneous	0.10
	09/08	27N	113W	19	Lightning	0.10
1984	None					
1985	None					
1986	None					

Total Fires — 32.00
Total Acres — 1,218.05
Average Fires/Year — 2.13

[1] Information derived from individual fire reports for period of record.

Suppression actions consist of appropriate levels of containment, confinement, and control. Containment is the taking of action by forces sufficient to contain the fire through the use of constructed or natural barriers. If a fire escapes containment, any continuing suppression action will be planned to minimize total resource losses, suppression and rehabilitation costs, and environmental damage.

Confinement implies minimal response to fires that are in areas where hazards to firefighters and suppression costs are high. Logical control will generally be at natural boundaries such as ridgetops.

Control is the taking of immediate suppression action on fires. Human and equipment resources are committed at an increasing rate until the objective of fully protecting the threatened area is met. Areas designated for this level of response are considered of high value or high risk, such as residences, H_2S gas wells, or valves.

Prescribed fire actions may include unplanned ignitions and planned ignitions. Prescribed fire (unplanned ignitions) implies that fire effects are favorable to the resource managed under a specified set of environmental criteria (prescriptions). Once a prescribed fire has been declared, funding will be by the benefiting activity.

Prescribed fire (planned ignitions) implies a planned ignition intended to enhance the resource that is targeted for treatment (see Vegetation Treatment section for further details). Standard project policy and procedures will guide these actions.

Areas would be identified in which a prescribed set of conditions (described under each alternative) would be acceptable in the event of an ignition. Fire would generally be confined to 200 acres or less in areas where current vegetation stages are desirable.

Prescribed burns would be conducted so that ambient air quality standards would not be violated. The BLM would also conduct prescribed burning so that smoke intrusions into sensitive areas would be minimized.

Wilderness suppression implies restraint in fire suppression methods for fires that occur within wilderness areas. In these areas, the fire management objective would be to manage fire in ways that will cause the least degradation to wilderness values. The areas may be managed as prescribed fire areas.

Support. Resource and operational support for presuppression planning and suppression would be required from the U.S. Forest Service, Sublette County Sheriff's Office, Wyoming State Forestry Division, and local fire protection districts.

Road construction for development activities would increase accessibility in the area. This would assist fire management activities for both wildfire suppression and prescribed fire planning and implementation. Appropriate mitigation (Appendix H) would be established for such activities.

Area of Critical Environmental Concern (ACEC) Management

Rock Creek ACEC

Objective. The objective for the designated 5,264-acre Rock Creek ACEC would be to protect the Colorado River cutthroat trout habitat with emphasis placed on maintenance and improvement of aquatic habitat. This designation and objective would be consistent throughout all alternatives. However, optional management prescriptions for the ACEC will be evaluated in the alternatives.

Beaver Creek ACEC

Objective. The objective for management of the proposed Beaver Creek area would be to promote riparian habitat management and protect the Colorado River cutthroat trout. Optional management prescriptions for the proposed ACEC will be evaluated in the alternatives.

Preferred Alternative

The preferred alternative provides the guidance which, for the area as a whole, emphasizes neither resource utilization nor resource protection. The objectives described in this alternative would be used to make resource tradeoffs which could, on a case-by-case basis, favor resource utilization, resource protection, or a compromise between them.

Restrictions For Surface-Disturbance Activities

No surface occupancy would be allowed to protect cultural sites 48SU301, 48SU350, and 48LN300 (about 1,100 acres), and about 585 acres of developed and semi-developed recreation sites (Maps 7 and 8).

No surface occupancy would be allowed on approximately 16,000 contiguous acres, including the Rock Creek ACEC, to protect wildlife values.

Seasonal restrictions for the protection of wildlife resources would be applied to about 427,810 acres of crucial and noncrucial big game winter range (Table 6).

TABLE 6

BIG GAME WINTER RANGE SEASONAL RESTRICTIONS (November 15 - April 30)

Alternative	Acres Restricted
Preferred[1]	427,810
Alternative A	398,170
Alternative B	398,170
Alternative C[1]	762,056

[1] Includes crucial and non-crucial big game winter habitat (antelope, elk, moose, and mule deer).

Minerals Management

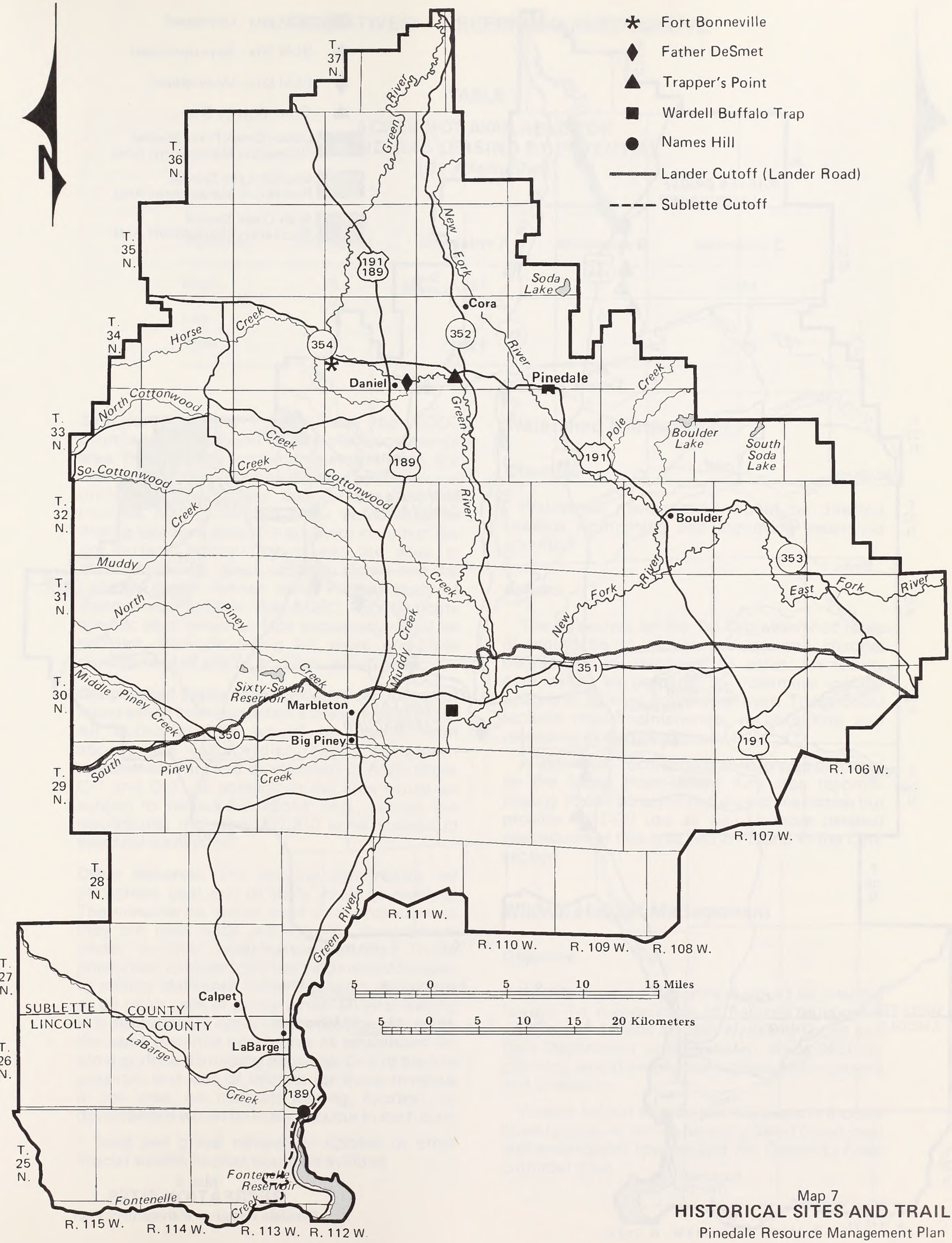
Objective

Public lands and federal mineral estate would be managed to make mineral resources available for orderly and efficient development while ensuring compatibility with other resource values and RMP decisions and objectives.

Actions

Oil and Gas Leasing. All lands (approximately 1,185,000 acres) would be open to oil and gas leasing (Table 7).

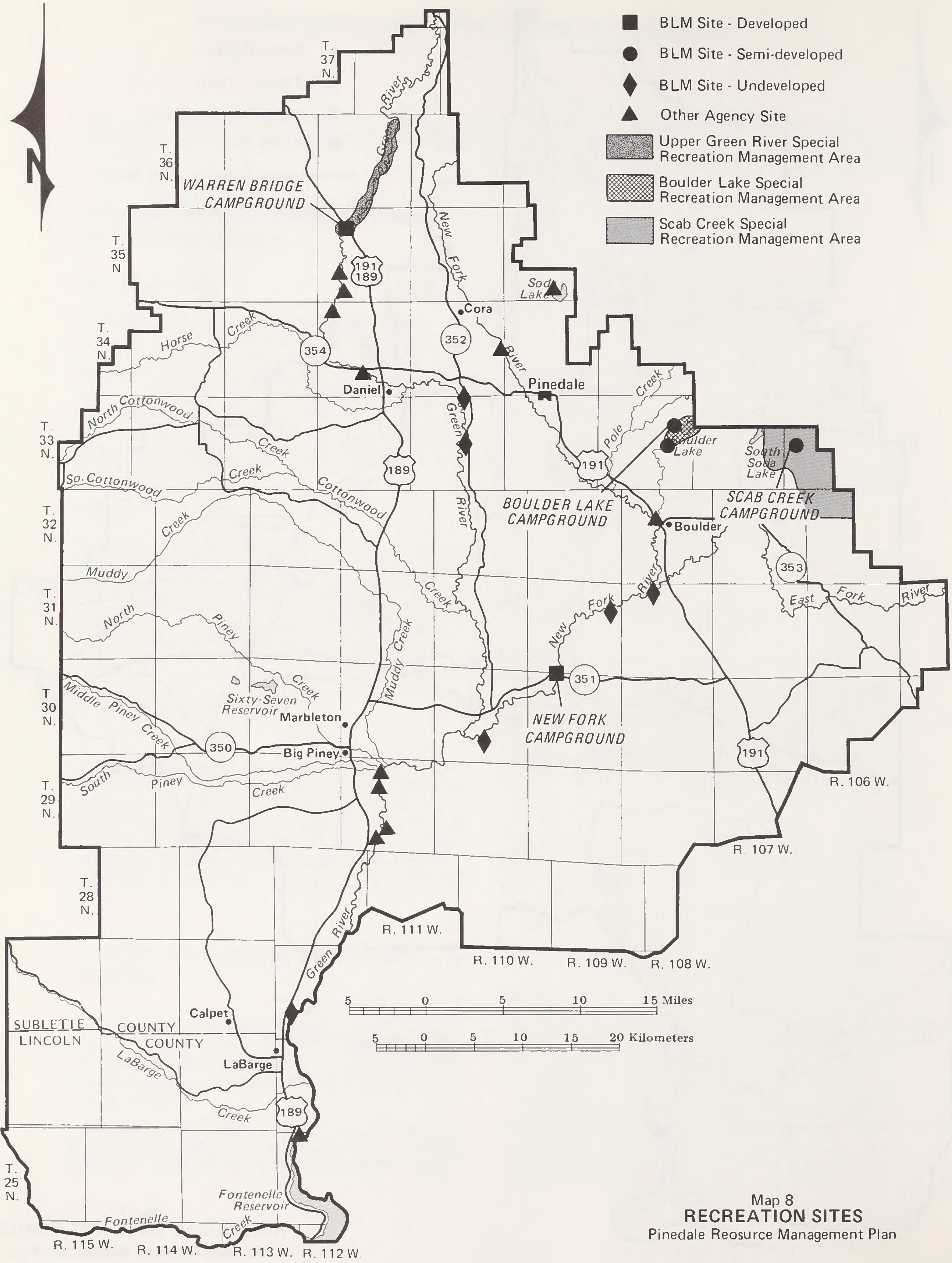
Approximately 16,000 contiguous acres which includes 5,264 acres in the Rock Creek ACEC would be offered for leasing with a no surface occupancy requirement. Approximately 2,300 acres of this area in the northeastern portion of the Rock Creek ACEC are considered to be of high gas potential, and are contiguous with existing federal oil and gas units recently formed and proven productive. Development of most of this portion of the ACEC could be accomplished by directional drilling from outside the ACEC boundary, affording protection of the Rock Creek drainage and Colorado River cutthroat trout habitat. Development of the remaining portion of the ACEC would necessarily be accomplished by



Map 7

HISTORICAL SITES AND TRAILS

Pinedale Resource Management Plan



Map 8

RECREATION SITES

Pinedale Reosurce Management Plan

TABLE 7

ACRES NOT AVAILABLE FOR OIL AND GAS LEASING BY POTENTIAL (By Alternative)

Potential	Preferred Alternative	Alternative A	Alternative B	Alternative C
High	0	5,264	0	5,264
Moderate	0	6,260	0	0
Low	0	0	0	0
Total	**0**	**11,524**	**0**	**5,264**

directional drilling from outside the ACEC boundary and surrounding no surface occupancy area. Because this surrounding area is large, the feasibility of complete development by directional drilling is questionable due to the distances involved. Also of concern is the lack of suitable drilling locations along the southern margin of the no surface occupancy areas; the area is characterized by steep, unstable slopes and the LaBarge Creek riparian zone. Further study of these areas outside the ACEC may indicate specific sites where surface occupancy could be allowed, thus providing for more complete development of any oil and gas resources.

Geophysical Exploration. Geophysical notices of intent would be evaluated on a case-by-case basis. All authorizations would be issued with appropriate surface-disturbance mitigation requirements applied as specified in Appendices C-1 and C-2. All acreage in the area would be subject to various limitations, (e.g., vehicle use restrictions) including 427,810 acres subject to seasonal limitations.

Other Minerals. The existing withdrawals for phosphate, coal, and oil shale would be revoked. The minerals no longer need such protection as they are now made available for development under mineral leasing regulations. These phosphate, coal, and oil shale lands would be open to mining claimants under the same conditions as all other uses of public lands. Mineral leasing is a discretionary action and would be subject to the same resource constraints as established for other surface-disturbing activities. Due to the low potential and lack of interest for these minerals in the area, no minerals leasing, location, or development would be likely to occur in the future.

Sand and gravel removal in riparian or other crucial wildlife habitat would be avoided.

Watershed Management

Objective

Watershed management would be directed towards maintaining and improving watershed condition.

Actions

The objectives for the Tip Top watershed (Map 3) would be to reduce erosion and channel degradation by stabilizing 54 acres. An activity plan would be prepared to determine specific actions to achieve these objectives. These could include road maintenance, recontouring and reseeding of disturbed sites.

A watershed/recreation plan would be prepared on the Stuart Point-Mount Airy area (approximately 10,560 acres) to reduce sedimentation but provide for ORV use as well. A more detailed description of this area can be found in the ORV section.

Wildlife Habitat Management

Objective

Wildlife habitat management would be oriented toward the maintenance of habitats to support wildlife populations at 1985 Wyoming Game and Fish Department strategic plan levels. Activity planning would emphasize habitat enhancement and protection.

Wildlife habitat activity planning would include other species as well as federally listed threatened and endangered species and the Colorado River cutthroat trout.

Actions

Habitat management plans (HMPs) would be prepared for the Deadline-Graphite elk habitat areas; the Mesa, Miller Mountain, and Bench Corral big game winter ranges; and sage grouse-antelope habitat.

Habitat would be enhanced by improvements, including development of approximately 15 water facilities. Activity plans would be prepared to develop improvement needs and locations.

Seasonal restrictions, on about 427,810 acres of winter range (Table 6), would be incorporated into all land use authorizations where appropriate.

High priority would be given to improvement of wildlife habitat through vegetation manipulation. Table 8 presents potential opportunities by vegetation type and animal species seasonal habitat. Approximately 16,000 acres suitable for treatment to benefit wildlife would be considered. Additional acreage may be proposed as suitable areas are identified. Crucial deer and antelope winter range (approximately 229,740 acres) would be treated only if habitat values would improve for these species.

Table 9 describes restrictions for vegetation manipulation for sagebrush types necessary to provide protection for wildlife.

TABLE 8

VEGETATIVE MANIPULATION OPPORTUNITIES (By Prescribed Burn)

Vegetation Type	Species Benefitted	Treatment Objectives
Sagebrush/Grass	Elk	Increase volume of grass forage on winter range
	Mule deer	Increase early green forage on spring/fall range
	Antelope	Increase plant diversity and forb component on summer range
	Sage grouse	Same as antelope
Aspen-Aspen/Fir Complex	Elk	Stimulate aspen regeneration and back subalpine fir invasion to perpetuate aspen stands in spring/summer range
	Mule deer	Same as elk
Willow Bottoms	Moose	Increase willow regeneration in critical moose habitat

The objectives for elk winter habitat in the Deadline-Ridge and Graphite Hollow area would be to protect this habitat. Mineral leases in the Graphite area would be offered with a no surface occupancy requirement. Preparation of a habitat management plan would determine if compatible development opportunities exist. Data from Wyoming Game and Fish Department monitoring studies and further information on the mineral resources would provide this information.

Monitoring. Monitoring studies would continue to be conducted to determine the status of the fisheries and elk calving areas. Road closures may be initiated to protect fisheries and elk habitat.

Big game and sage grouse habitats would be monitored, along with habitats for federally listed threatened and endangered species and the Colorado River cutthroat trout.

In addition to the monitoring identified in Actions Common to All Alternatives, mule deer, elk, antelope, and sage grouse use patterns would be monitored. Habitat trend would be interpreted through survey data collected in cooperation with livestock and watershed monitoring activities. Interdisciplinary selection of key areas and species would ensure that crucial habitats are monitored.

TABLE 9

HABITAT GUIDELINES FOR BRUSH CONTROL

Habitat Classification	Alternatives			
	Preferred Alternative	**Alternative A**	**Alternative B**	**Alternative C**
Sage grouse breeding complex (that area within a two mile radius of an active strutting Percentage restriction to be applied on each individual lek or complex of leks within contiguous buffer areas.	Maximum of 20% of sagebrush type treated at any time.	Evaluate on a case-by-case basis.	Maximum of 40% of sagebrush type treated at any time.	Maximum of 20% of sagebrush type treated at any time.
Crucial antelope, mule deer, and sage grouse winter and winter yearlong range.[1]	No treatment unless beneficial to antelope, deer, and sage grouse.	Evaluate on a case-by-case basis.	Maximum of 20% of sagebrush type treated at any time.	No treatment unless beneficial to antelope, deer, and sage grouse.
Crucial elk winter range and winter yearlong range.[1]	Maximum of 40% of sagebrush type treated at any time.	Evaluate on a case-by-case basis.	Maximum of 60% of sagebrush type treated at any time.	Maximum of 40% of sagebrush type treated at any time.
Antelope, elk, moose, mule deer, and sage grouse winter, winter/yearlong, and summer habitat.[1]	Maximum of 20% of sagebrush type treated at any time.	Evaluate on a case-by-case basis.	Maximum of 40% of sagebrush treated at any time.	Maximum of 20% of sagebrush type treated at any time.

[1] Percentage resturction applied to individual range units as designated on maps 22 through 26.

Basic Assumptions:

1. If new information indicates that wildlife would benefit from sagebrush treatment at higher levels than indicated through this process, upper levels would be adjusted accordingly.

2. In cases of seasonal range overlap, the most restrictive constraint would be applied.

3. When previously treated sagebrush areas return to a sagebrush canopy cover of 25 percent or greater, they would be considered untreated and would be added to the base acreage available for future treatment proposals.

4. Specific project design and mitigation would be developed during the activity planning phase.

5. Although only game species habitat is specified, consideration for other species associated with the sagebrush communities is built into the treatment constraints.

6. The maximum acreage available for treatment encompasses the entire vegetation type acreage in the area.

Livestock Grazing Management

Objective

Vegetation would be managed to maintain or improve ecological range condition, and to maintain or increase the amount of available forage for livestock grazing, while providing for the maintenance or improvement of wildlife habitat, watershed, and riparian areas.

Actions

All grazing systems would be designed to provide good plant diversity. Specific objectives would be determined during AMP preparation to provide forage diversity for antelope, mule deer, and sage grouse spring/summer habitat. Grazing systems would be designed to limit forage competition for forbs and other desirable plants, particularly in the spring of the year.

All developed and semi-developed recreation sites would be closed to livestock grazing.

Grazing Preference. Forage would be available for livestock grazing use. Management would also provide for protection or enhancement of other resource values. The grazing preference of l07,907 animal unit months (AUMs) would be maintained or increased through implementation of AMPs, range improvements, and vegetation manipulation. An increase of 12,450 AUMs would be available through land treatments (Appendix D-5). Of this increase, 2,636 AUMs would be in grazing use (preference) in 20 years.

The season of use and class of livestock would continue to be as shown on Appendix D-6.

Allotment Management Plans (AMPs). New AMPs would be written and implemented on "I" allotments in the priority shown in Appendix D-5. Existing AMPs on "I" allotments would be modified to meet livestock objectives and incorporate wildlife and watershed objectives which may be obtained through livestock management. Existing AMPs on "M" category allotments would not be modified, unless monitoring and evaluation indicate that a change in management is needed.

Range Improvements. New range improvements (Appendix D-5) would be implemented on "I" category allotments as first priority. The range improvements on "M" and "C" category allotments would be funded as priorities allow, or they could be funded by other sources. New range improvements would be designed to meet multiple use objectives for all resources as possible. Proposed improvements include approximately 98,552 acres of vegetation manipulation, 21 water developments, and 56 miles of fence. The maintenance responsibility of range improvements would be assigned to the benefiting user. The reconstruction of range improvements would be accomplished as needed. This alternative has an overall beneficial cost ratio of l.80:l, which means that for each dollar invested, a benefit of $1.80 would be produced over 50 years.

Approximately 98,552 acres of vegetation would be suitable for treatment (Table 9) for forage production in the "I" and "M" allotments (Appendix D-5).

The vegetation manipulations in the "I" allotments would be financed by BLM monies and other monies, if available. The vegetation manipulations in the "M" category allotments could be financed by sources other than BLM monies such as permittees, other agencies, or grazing boards. BLM would not finance the vegetation manipulations in the "M" allotments until all the range improvements are accomplished in the "I" category allotments. Prescribed fire would generally be the preferred method of vegetation manipulation for the conversion of brush to grassland. Wildfires occurring in areas with a prescription, would be allowed to burn as long as they remain within prescription and meet land use objectives. Other vegetation manipulation methods would be considered on a case-by-case basis.

No livestock waters that would result in increased forage competition would be developed on crucial elk winter range, unless an overall benefit to elk would occur.

Forage Increases. Long-term forage increases resulting from vegetation manipulation would be allocated to wildlife, watershed, and livestock, respectively, on "I" category allotments and on "M" category allotments that contain crucial wildlife habitat. The allocation would be approximately 50 percent for wildlife and watershed and the other 50 percent to livestock. The allocation of forage resulting from treatments financed by permittees, as in "M" category allotments that do not have crucial wildlife ranges, would be evaluated on a case-by-case basis and more than 50 percent may be allocated to livestock grazing.

The vegetation treatments are expected to produce an additional 12,450 AUMs in the "I" and "M" category allotments. These AUMs would be used to offset the forage losses that result from surface-disturbance activities and forage to be set aside for wildlife and watershed. The net forage allocation increase to livestock grazing in "I" category allotments would be a total of approximately 2,636 AUMs.

Combining Allotments. The East of DLE (2136) and Gilchrist DLE (2140) allotments would be combined. The permittees would be consulted prior to combining allotments.

Rangeland Monitoring and Evaluation. Monitoring of the vegetation resource would be conducted at a level sufficient to detect changes in grazing use, trend, and range conditions. Adjustments in use would be made accordingly. The "M" and "C" allotments would be monitored at a low intensity. Ecological range site condition mapping would be completed.

Nonallotted Public Lands. The 20,991 acres of unallotted public lands would be allocated as follows: 1) unallotted riparian areas would not be allocated to livestock grazing, but rather to wildlife and watershed uses; and 2) other areas would be evaluated on a case-by-case basis in accordance with the RMP goals and objectives to set forage allocation levels for the competing uses. The number of AUMs to be allocated would not be set until after the parcels are evaluated.

Conversions in Kind. Conversions from cattle to sheep would generally not be allowed on the critical antelope and deer winter ranges. Conversions in kind would be evaluated on a case-by-case basis, including an environmental analysis, and would be allowed if in conformance with the goals and objectives of the RMP.

Riparian. Livestock would be managed to improve all riparian areas to a condition class of good or excellent in the long term In the short term livestock would be managed to improve all poor and fair riparian areas by a minimum of one condition class to fair or good respectively. Priority would be given to important Colorado River cutthroat trout habitat. This objective may necessitate such actions as reducing livestock numbers, fencing riparian areas, herding, conversion from cattle to sheep, etc.

Elk Winter Range. Adequate forage for wintering elk would be provided (population levels based on Wyoming Game and Fish Department 1985 Strategic Plan) in the Bench Corral, Miller Mountain-Fort Hill, Riley Ridge, and Graphite elk winter ranges. This could be accomplished through a combination of livestock grazing adjustment and vegetation manipulation.

Wild Horse Management

Objective

Resolve conflicts for water and forage between wild horses and other resource uses.

Actions

All wild horses would be removed from the the resource area and made available for adoption through the BLM Adopt-A-Horse Program. The wild horse herd area designation would be removed.

No forage would be allocated for wild horses in the Desert and LaBarge Herd areas. Wild horse roundups would be conducted in the Desert and LaBarge areas.

Forest Management

Objective

The forest resource would be managed for the production of forest products with strong emphasis on maintaining 1985 wildlife cover levels.

Actions

The forest management actions reflect the allocation of forested acres to benefit or maintain various resource values, including forestry. Accordingly, all forested land in the planning area has been classified into four categories:

Category 1, Intensive Management, would include areas where the forested lands would be managed for multiple-use, but with emphasis placed on forest product utilization and forest management activities.

Category 2, Restricted Management, would include forested lands where wildlife, watershed, and recreation resource values would be emphasized and partial cutting, extended forest crop rotations, or other restrictions to forest management, would be applied.

Category 3, Management to Enhance or Maintain Other Resources, would only allow forest management activities (harvesting or thinning) on lands in this category when such activities would benefit resources or values other than forestry or would promote public safety. All forest lands included in this category would not be included in the forest management base or in timber harvest calculations.

Category 4, No Forest Management, would include all areas where forest management is excluded.

Table 10 shows the acreage distribution by management category. Approximately 24,223 acres of commercial conifer would be available for production of forest products. Of this 24,223 acres, approximately 20,836 acres would be subject to harvest method/equipment use and minimum cover level restrictions (Category 2). The remaining 3,387 acres would be unrestricted, except for actions common restrictions (Category 1). Approximately 13,506 acres of woodland (Categories 1 and 2) would be available for forest product disposals on a demand basis and consistent with the projected harvest levels in the action common section. An additional 3,113 commercial conifer and woodland acres would be removed from the forest base (Categories 3 and 4). The 1,611 acres in Category 3 would be available for forest management activities when such activities are deemed necessary to maintain the integrity of the resource being protected or to promote public safety.

The forested lands in Categories 1 and 2 would be managed to produce approximately 2,810 acres of timber harvesting over the next 20 years with

TABLE 10

TIMBER ACREAGE ALLOCATIONS FOR THE PREFERRED ALTERNATIVE

	Commercial Conifer[1]	Woodland[2]	Total
Category 1[3]	3,387	1,923	5,310
Category 2[4]			
Riparian Buffer[5]	112	80	192
Deadline-Pinegrove Unit	12,126	3,330	15,456
North Piney Unit	4,450	4,097	8,547
Miller Mountain Unit	3,964	3,805	7,769
Scab Creek area	184	271	455
Category 3[6]			
Fort Hill (elk winter range)	277	145	422
Elk Feedgrounds	783	406	1,189
Category 4[7]			
Rock Creek ACEC (drainage only)	1,322	180	1,502
Total Acreage	**26,605**	**14,237**	**40,842**
Acres Available for Forest Management (Categories 1 & 2)	**24,223**	**13,506**	**37,729**
Acres Not Available for Forest Management (Categories 3 & 4)	**2,382**	**731**	**3,113**

[1] Commercial conifer consists of lodgepole pine, Douglas-fir, and the spruce-fir tree species. It also contains non-stocked stands capable of supporting these species or species groups.

[2] Woodland consists of aspen and limber pine.

[3] Lands available for intensive management of forest products.

[4] Lands available for restricted management of forest products.

[5] Riparian Buffer includes only those riparian acres not included in other restrictions.

[6] Land where forest acreage would be managed to enhance other resources.

[7] Lands not available for management of forest products.

an estimated volume of 18.2 million board feet (mmbf). The 18.2 mmbf harvest estimate is based upon the area average of 6,478 board feet per acre; however, actual harvest values may vary depending on the individual stand or stands being harvested (USDI 1985a). The harvest acreage is based on two situations. Where high wildlife values occur, additional harvesting would be allowed as logged or burned areas presently out of cover regain their cover status. Where wildlife values are not an overriding concern, the harvesting would be based on the allowable harvest/sustained yield levels.

Annual harvest levels would be approximately 137 acres but may vary to meet individual sale and area objectives. Harvest volumes would also vary, depending on the annual harvest acreage, harvest methods, and individual sale conditions. Specific harvest sequences, acreages, and anticipated volumes would be established in forest management plans, which would be coordinated with adjacent landowners, the USFS, the Wyoming Game and Fish Department, and other interested parties.

In addition to the harvest level, approximately 1,200 acres of precommercial thinning would occur during the 20-year period (USDI 1985a). Precommercial thinning projects would generally be designed to achieve an 8-foot spacing (e.g. roughly 680 trees per acre would be left uncut) and should not significantly affect cover levels (Table 11).

TABLE 11

TIMBER HARVEST AND THINNING LEVELS PER DECADE BY ALTERNATIVE[1]

	Preferred Alternative	Alternative A	Alternative B	Alternative C
Harvest Level (mmbf)	9.1	12.5	18.8	6.0
Harvest Acreage[2]	1,405.0	1,930.0	2,910.0	932.0
Precommercial Thinning[3]	600.0	600.0	600.0	600.0
Total Acreage Involved	2,005.0	2,530.0	3,510.0	1,532.0
Average Acres Involved/Year	200.5	253.0	351.0	153.2
Average Volume Harvested/Year (mmbf)	0.91	1.25	1.88	0.60

[1] Harvest acreage and volume and thinning would be from Categories 1 and 2 (lands available for intensive forest management and lands available for restricted forest management) described in the Affected Environment.

[2] Harvest acreage figures assume an average volume/acre of 6,478 board feet (USDI 1985a) and reflect a combination of clearcut and partial cut harvesting, as well as commercial thinning.

[3] Precommercial thinnings would generally be designed to leave a tree every eight feet or approximately 680 trees per acre and should not result in reductions in cover ratios.

The 2,810-acre harvest level would be derived from four individual management units, Deadline-Pinegrove, North Piney, Miller Mountain, and Eastside-Hoback. Each unit has different conditions, concerns, objectives, and management prescriptions but all are subject to the following restrictions:

1. Generally, no clearcutting or tracked or wheel-type equipment operations would be allowed within a 100-foot buffer of a riparian area. Exceptions would require site-specific environmental analysis.
2. Logging operations on slopes steeper than 45 percent would be limited to technologically and environmentally acceptable methods such as cable yarding and(or) horse skidding.
3. No logging activities would be allowed from November 15 through April 30 in crucial elk winter ranges and adjacent to elk feedgrounds and from May 1 through June 30 in elk calving areas.
4. Clearcut harvest units, generally, would not exceed 40 acres and would vary in size to

meet multiple use management objectives such as visual resource management, wildlife, etc.

5. Regeneration in harvest units and burned areas must provide an average of one sight distance (the distance required to hide 90 percent of an adult elk) of hiding cover or must achieve preharvest stocking levels (numbers of trees per acre) with 12- to 15-foot tall trees before timber harvesting would be allowed in adjacent stands. Exceptions would be allowed for emergency salvage of insect- or disease-infested and weather- or fire-damaged timber.
6. Slash disposal would be tailored to the individual harvest unit to promote reforestation, minimize erosion, and allow big game movement. Methods that would be employed include broadcast burning, piling and burning, lopping and scattering, chipping, and roller chopping.
7. Timber harvesting practices would be consistent with accepted silvicultural guidelines for each species but would also reflect individual stand conditions or other resource and environmental concerns.

Deadline-Pinegrove Unit. The Deadline-Pinegrove unit would be managed to give full protection to the Colorado River cutthroat trout in the Rock Creek drainage and to maintain October 1985 levels of forest cover for wildlife in the remainder of the unit. The existing cover level consists of nearly all of the forest acreage, excluding approximately 953 acres (roughly eight percent of the conifer base), currently out of cover status due to timber harvesting.

These 953 acres would be available for harvest over the next 20 years, including those acres under timber sale contract but not logged as of October 1985. These acres would be available if existing logged or burned areas would provide acceptable wildlife hiding cover or at least be restocked to the preharvest tree density with 12- to 15-foot tall trees within 20 years, through natural and artificial reforestation measures. Should this not be achieved, the 20-year harvest level would be commensurately reduced to maintain the October 1985 cover level. Further reductions may be necessary due to uncontrolled events such as wildfire or harvesting for other development activities such as oil and gas. Annual fluctuations would be allowed in the cover level to permit the disposal of forest products in logical and economical units and to maintain a sustained harvest level. Loss of conifer cover to other activities, Categories 1 and 2, would be considered part of the allowable harvest acreage.

Increases in the timber harvest level and a commensurate decrease in wildlife cover would be allowed in the event that other conflicting uses, such as oil and gas development, subside and providing that such decreases in the cover level would not reduce the elk population below the 1985 target level in the Wyoming Game and Fish Strategic Plan.

In addition to the general restrictions, several specific restrictions apply only to the Deadline-Pinegrove Unit:

1. All forest management activities would be excluded in the Rock Creek drainage.
2. A minimum of 90 percent of the conifer acreage in the Graphite and Riley Ridge crucial elk winter ranges would be maintained. Annual cover level fluctuations would not be allowed except for emergency salvage.
3. No clearcutting or road construction would be allowed within 1,000 feet of the Beaver Creek. Exceptions would be granted only if assurance can be given that such actions would not adversely affect crucial Colorado River cutthroat trout habitat.

North Piney Unit. The North Piney unit would be managed to give full protection to the elk feedgrounds and to maintain existing (October 1985) levels of forest cover for wildlife, primarily elk.

Approximately 680 acres would be harvested for forest products during the next 20 years including 32 acres presently under timber sale contract but not logged. This harvest level also assumes that all conifer acres currently not producing elk cover would regain cover status within the 20-year period, that annual fluctuations in the cover level would be allowed, that all losses of conifer cover, regardless of the source, in Categories 1 and 2, would be considered part of the allowable harvest level, and all acres under timber sale contract but not logged would count toward the 20-year harvest level. All forest management activities would be excluded from the Finnegan and North Piney elk feedgrounds, except when such management would be necessary to maintain the integrity of the feedground environment.

Miller Mountain Unit. The Miller Mountain unit would be managed to provide full protection to forested portions of the Fort Hill-Fontenelle elk winter range and to maintain approximately 90 percent of the conifer acreage in the remainder of the unit in cover for wildlife.

Approximately 396 acres or 10 percent of the conifer base, excluding the winter range, would be harvested during the next 20 years. The assumptions made for the Deadline-Pinegrove and the North Piney units would also apply to the harvest level for this unit. Forest management activities would be excluded from the elk winter range. Exceptions would be allowed for emergency salvage when the wildlife would benefit.

Eastside-Hoback Unit. The Eastside-Hoback unit would be managed to give full protection to the area and forested portions of the elk feedgrounds and to manage the remaining forested lands for forest products on an allowable harvest/sustained yield basis.

All forest management activities would be excluded from the Franz elk feedground. Salvage and sanitation harvests would be allowed when deemed necessary to maintain the integrity of the feedground environment. Approximately 781 acres would be harvested for forest products over the next 20 years based on and prorated from figures in USDI 1985a (adjusted operational limits solution).

The following restriction is in addition to the general restrictions:

> The removal of forest products in about 1,764 acres of the Scab Creek area would be limited to partial cutting. Horse yarding would be required in areas not adjacent to existing roads and trails. No new roads would be allowed.

Table 12 displays the timber harvest objectives for each management unit.

TABLE 12

TIMBER HARVEST LEVELS BY MANAGEMENT UNIT

Unit	Conifer/ Cover Acreage[1]	Acres Out of Cover[2]	Percent Out of Cover	Proposed Harvest Acres	Percent Out of Cover	Expected Volume (mmbf)
Deadline-Pinegrove	12,126	953	8	953	8	6.2
North Piney	4,450	680	15	680	15	4.4
Miller Mountain	3,964	209	5	396	10	2.6
Eastside/Hoback	3,683	23	1	781	21	5.0
Total	**24,223**	**1,865**	**8**	**2,810**	**12**	**18.2**

[1] Excludes forest acres where forest management activities would be prohibited.

[2] Source: USDI 1985b.

Visual Resource Management (VRM)

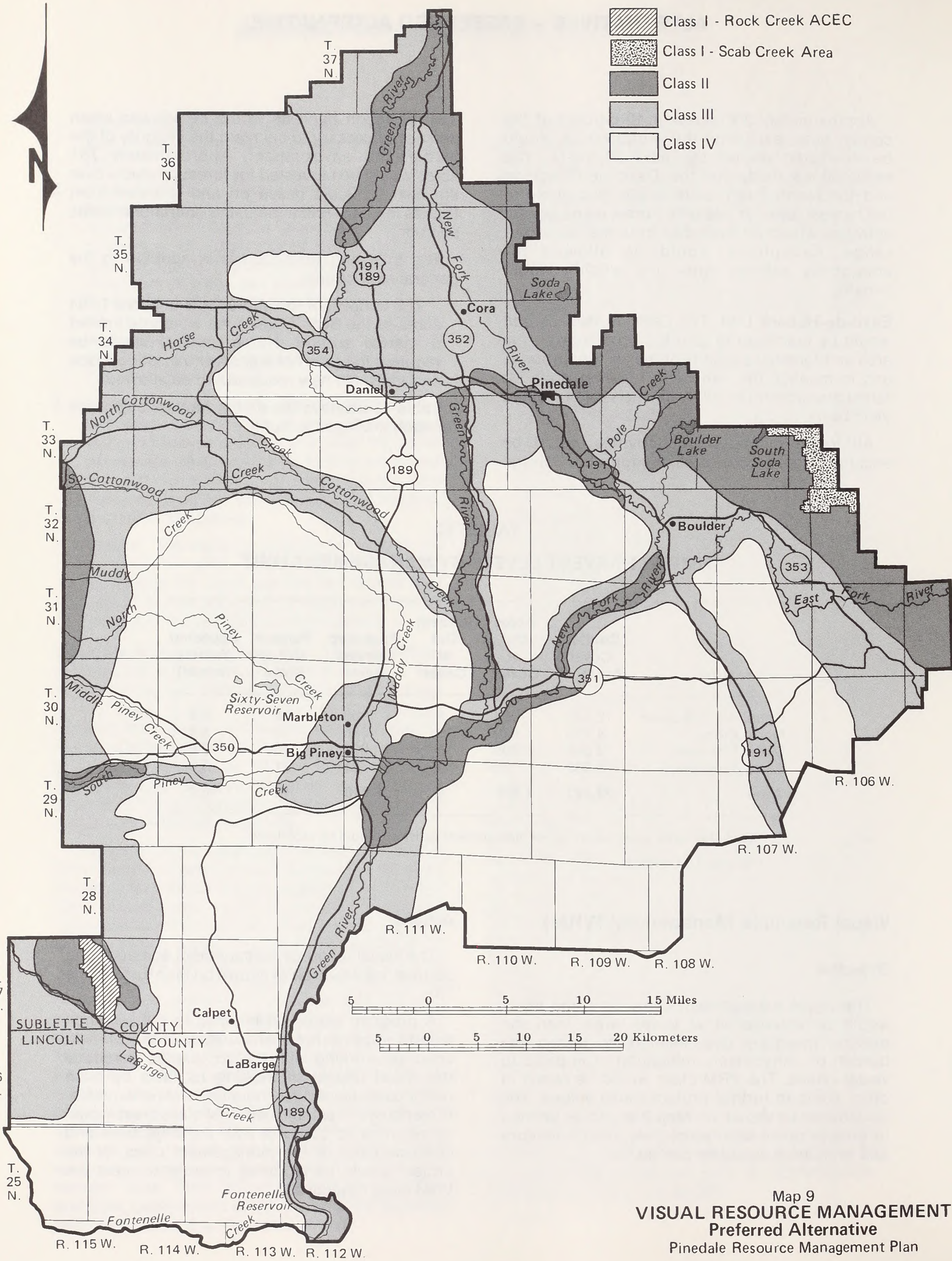
Objective

The visual management class for some areas would be established at lower levels than the existing inventory classification, to lessen the burden of unnecessary mitigation of impacts to visual values. The VRM class would be raised in other areas to further protect visual values. The boundaries as shown on Map 9 would be defined in greater detail at a future date, after inventory and evaluation would be completed.

Actions

The visual resource management acreages and boundaries would be as shown on Map 9 and Table 13.

A program would be initiated in the resource area to improve the visual quality of the oil field areas by working with the companies to reduce the visual impact of existing facilities by such methods as painting, screening, and reclamation. Projects within established VRM class areas would be required to conform with the objectives and characteristics of the management class, or the project would be modified in order to meet the VRM class objective.



Map 9
VISUAL RESOURCE MANAGEMENT
Preferred Alternative
Pinedale Resource Management Plan

TABLE 13

VISUAL RESOURCE MANAGEMENT CLASSIFICATIONS AND ACREAGE
(By Alternative)

Classification	Preferred Alternative	Alternative A	Alternative B	Alternative C
I	12,036	6,680	7,636	12,900
II	215,826	463,674	201,481	318,019
III	594,809	354,692	519,791	488,348
IV	795,329	792,954	889,092	798,733
Total	**1,618,000**	**1,618,000**	**1,618,000**	**1,618,000**

Off-Road Vehicle (ORV) Management

Objective

The objective of off-road vehicle management would be to allow the legitimate use of off-road vehicles where possible, and provide adequate protection to identified critical resources, especially wintering wildlife. ORV open use areas would be provided near major communities to allow for recreational ORV uses. The planning area would be designated as either "open," "closed," or "limited to ORV uses." The majority of the area would be designated as "limited" (i.e., having travel limited to existing roads and trails except for over-the-snow vehicles).

Actions (refer to Map 10)

In addition to the ORV restrictions currently implemented, the following seasonal closures would be implemented (Table 14):

> The Bench Corral elk winter range would be closed to all ORV use, including over-the-snow vehicles, from November 15 through April 30. Lands around the Franz, Finnegan, and North Piney feedgrounds would also be closed to ORV use from November 15 through April 30.
>
> The Deer Hills, Oil Field, and Mesa deer and antelope winter ranges would have a winter travel limitation restricting vehicle travel to plowed roads only, from November 15 through April 30. Exceptions would be granted for permitted uses.
>
> About 120 acres in the Holden Hill area would be closed to all ORV use.

ORV open areas would be established adjacent to the towns of Pinedale and Big Piney to provide intensive use areas for ORVs, after completion of a site specific activity plan involving cultural, wildlife, watershed, recreation, and grazing considerations. The precise acreage would be determined during preparation of the activity plan.

Recreation Management

Objective

The recreation program would be managed to accommodate existing uses, prevent resource degradation resulting from recreation and other uses, and provide for the anticipated increased recreation uses in the resource area.

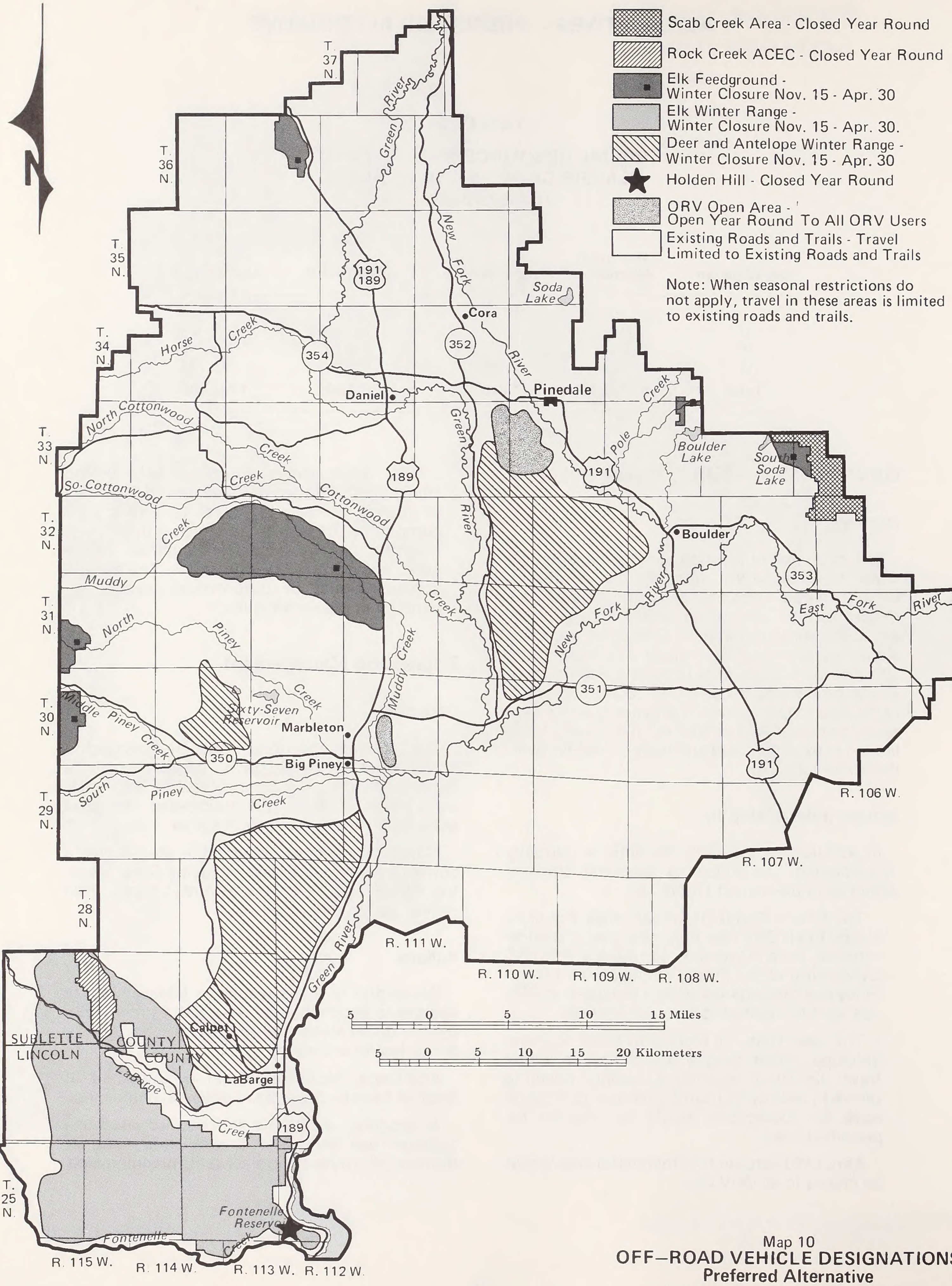
Management emphasis would be placed on the current management areas including Scab Creek, the Green and New Fork Rivers, Oregon Trail routes, and Boulder Lake.

Actions

Recreation facilities would be installed where needed to accommodate the existing recreation uses and use levels and to provide for adequate public health and safety.

Additional facilities would be installed at Boulder Lake to develop the potential of that area.

A program would be initiated to establish optimum use levels and development levels for the recreation areas and sites in the planning area.



Map 10

OFF–ROAD VEHICLE DESIGNATIONS

Preferred Alternative

Pinedale Resource Management Plan

TABLE 14

OFF-ROAD VEHICLE DESIGNATIONS (Preferred Alternative)

Name of Area	Type of Designation	Season/ Dates of Restriction	Acres	Resource Being Protected
Scab Creek Area	Closed	year round	7,636	Wilderness
Rock Creek ACEC	Closed	year round	4,200	Wildlife, Watershed
Holden Hill	Closed	year round	120	Cultural
Bench Corral Feedground	Limited, No motorized vehicles	11/15-4/30	33,120	Wildlife
Fall Creek Feedground	Limited	11/15-4/30	714	Wildlife
Finnigan Feedground	Limited	11/15-4/30	2,698	Wildlife
Franz Feedground	Limited	11/15/-4/30	3,170	Wildlife
North Piney Feedground	Limited	11/15-4/30	2,519	Wildlife
Scab Creek Feedground	Limited	11/15-4/30	1,870	Wildlife
Miller Mountain	Limited	11/15-4/30	118,543	Wildlife
Deer and Antelope Winter Range	Limited No travel off plowed roads	11/15-4/30	137,600	Wildlife
Mount Airy	Open	year round	10,560	Recreation
Big Piney Proposed ORV Open Area	Open	year round	1,600	Recreation
Remainder	Limited to Existing Roads and Trails	year round	606,650	All
Total Acres			**931,000**	

Withdrawals from exploration and development of locatable minerals would be pursued, if necessary, on developed and semi-developed recreation sites (currently about 585 acres).

Management plans for Scab Creek area, the Green and New Fork Rivers, and the Oregon Trail routes would be implemented with emphasis toward maintaining or improving the quality of the sites and the recreation experience.

A 16-day camping limit would be implemented throughout the area. A temporary no overnight camping stipulation may be imposed in an emergency.

Cultural Resource Management

Objective

The cultural resources program would be managed to: 1) resolve conflicts between cultural resources and other resource uses; 2) provide appropriate levels of protection for significant cultural resources; and 3) design cultural resource management actions to enhance the value of cultural resources.

Actions

Cultural resource management plans would be completed and implemented to identify, salvage, and protect cultural and historical sites. Plans would be prepared for sites currently listed on, or determined eligible for the National Register of Historic Places (NRHP), including sites 48LN300, 48SU350, and 48SU301 and for newly discovered significant cultural sites. Such new sites would include the Overlook Rock Shelter (80 acres), the Aspen Stone Circle Site (100 acres), the Cora Butte alignment (unknown acres), the Willow Lake Site (unknown acres), and the Boulder Lake Site (approximately 200 acres). Specific management prescriptions would be developed in the plans and an environmental analysis completed.

Significant cultural resource sites would be nominated to the National Register of Historic Places and withdrawal of such sites from exploration and development of locatable minerals would be pursued, if necessary.

Lands actions, such as exchanges, in support of cultural resource management objectives would be pursued, as appropriate.

The BLM Oregon/Mormon Pioneer National Historic Trails Management Plan would be implemented. Initial actions would include completion of the trail marking and signing program. Additional interpretive sites would be developed at strategic locales such as Sand Springs, the trail crossings of the Green and New Fork Rivers, and up South Piney Creek. An interpretive plan for the Lander Road would be developed and implemented.

Second priority would be given to land exchanges favorable to protection of the historic trails.

Cooperative agreements would be pursued with local historical and archeological societies and other interested parties for attaining mutual historic preservation goals.

Lands Management

Objective

The right to occupy or acquire public lands would be authorized under the appropriate realty actions to implement a multiple use management concept within the objectives and guidance provided under all resources described in this alternative. Private and state inholdings would be considered for acquisition through exchange when needed to improve the management situations for other activities described in this alternative. Exchanges would be considered when other management options such as cooperative agreements are not available.

Actions

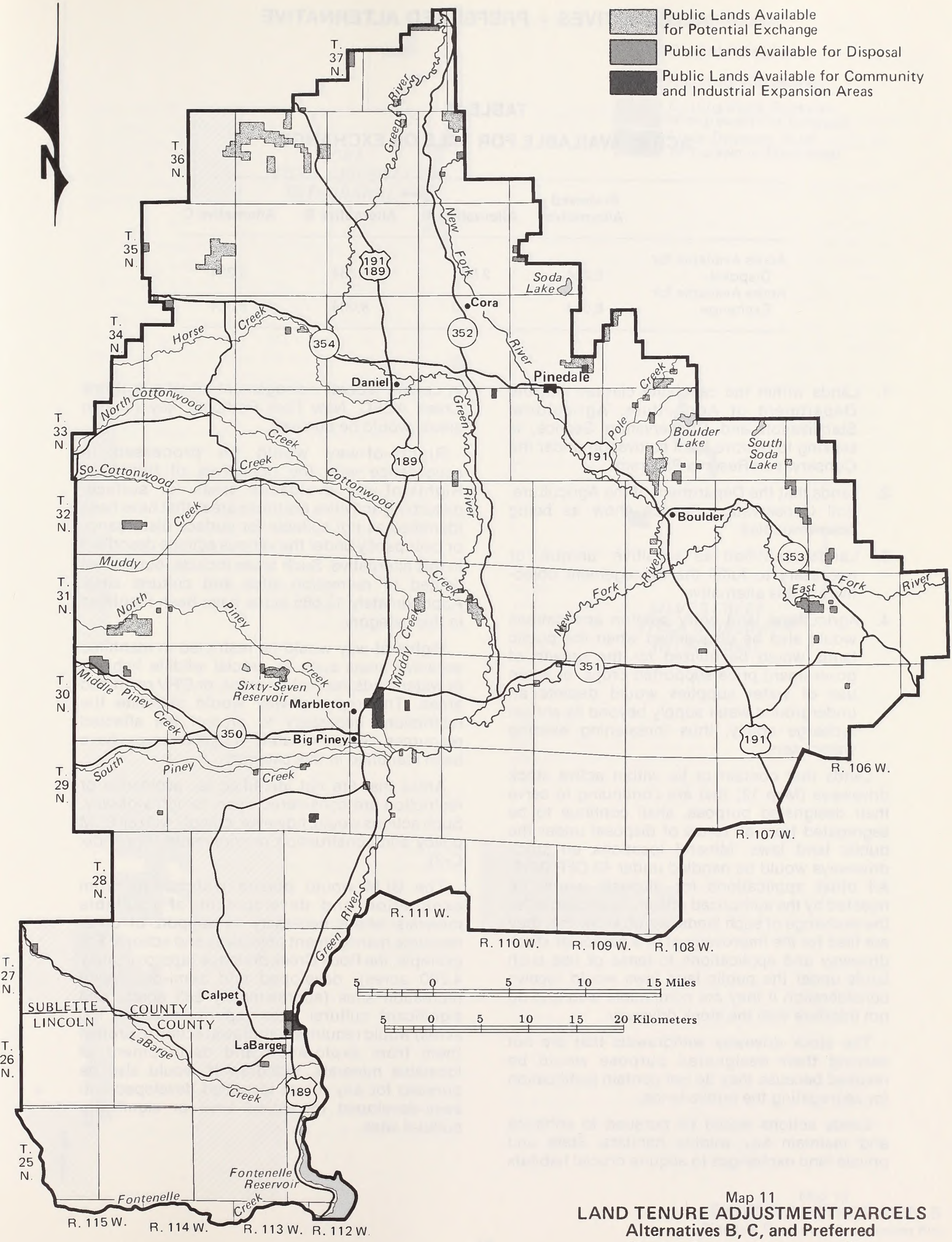
Classification and Multiple Use Act retention and disposal classifications (orders W-19140, W-25810, and W-12668) in Sublette and Lincoln Counties would be terminated. Discretionary management under the provisions of FLPMA, in areas formerly covered by these orders, would be consistent with the provisions of this alternative.

Small unmanageable land parcels would be exchanged or sold at fair market value. Exchange would be the preferred method of disposal.

Land disposal actions (e.g., exchange or sale) would occur in those areas where the public interest would best be served by these types of realty actions. Identified parcels of isolated public lands, parcels identified for community and industrial expansion, or areas that may contain parcels that meet the criteria contained in FLPMA and the plan objectives, would be made available for disposal after a site-specific analysis determining compliance with FLPMA. The parcels identified (Table 15, Map 11, Appendix G-2) also meet the criteria stated in Appendix G-1. Disposal of all identified parcels would not be expected and other qualifying parcels may be identified in the future. Approximately 48 public land parcels, encompassing approximately 5,300 acres, have been identified for disposal through sale or exchange. Another 1,000 acres adjacent to communities are expected to meet the disposal criteria (Map 11).

In addition to the 48 parcels, several others have been identified as available for disposal with exchange being the preferred method. Parcels totaling approximately 8,000 acres have been identified as suitable for exchange. Other exchanges would be considered for other lands needed to support the recommendations of other activities in this alternative. Exchange is the preferred method of disposal provided such exchanges are needed to provide for the efficient BLM management of existing public lands or resources in the Pinedale Resource Area, and are consistent with the objectives of this alternative.

Desert Land Entry petition-applications would be disqualified when the public lands are identified as:



Map 11

LAND TENURE ADJUSTMENT PARCELS

Alternatives B, C, and Preferred

Pinedale Resource Management Plan

TABLE 15

ACRES AVAILABLE FOR SALE OR EXCHANGE

	Preferred Alternative	Alternative A	Alternative B	Alternative C
Acres Available for Disposal	6,284	2,000	6,284	5,284
Acres Available for Exchange	8,004	0	8,004	8,004

1. Lands within the capability classes that the Department of Agriculture, Agricultural Stabilization and Conservation Service, is seeking to remove from cultivation under the Conservation Reserve Program.
2. Lands that the Department of the Agriculture, Soil Conservation Service show as being "non-irrigable."
3. Lands identified as sensitive, unique, or necessary to fulfill the management objectives of this alternative.
4. Agricultural land entry petition applications would also be disqualified when the public lands would be utilized for the growth of government price-supported crops, or when use of water supplies would deplete an underground water supply beyond its annual recharge ability, thus threatening existing water users.

Lands that contain or lie within active stock driveways (Map 12) that are continuing to serve their designated purpose, shall continue to be segregated from all forms of disposal under the public land laws. Mineral locations on stock driveways would be handled under 43 CFR 3815. All other applications for disposal would be rejected by the authorized officer. Applications for the exchange of such lands, which show that they are filed for the improvement of a particular stock driveway and applications to lease or use such lands under the public land laws would receive consideration if they are compatible with and do not interfere with the stock driveway.

The stock driveway withdrawals that are not serving their designated purpose would be revoked because they do not contain justification for segregating the public lands.

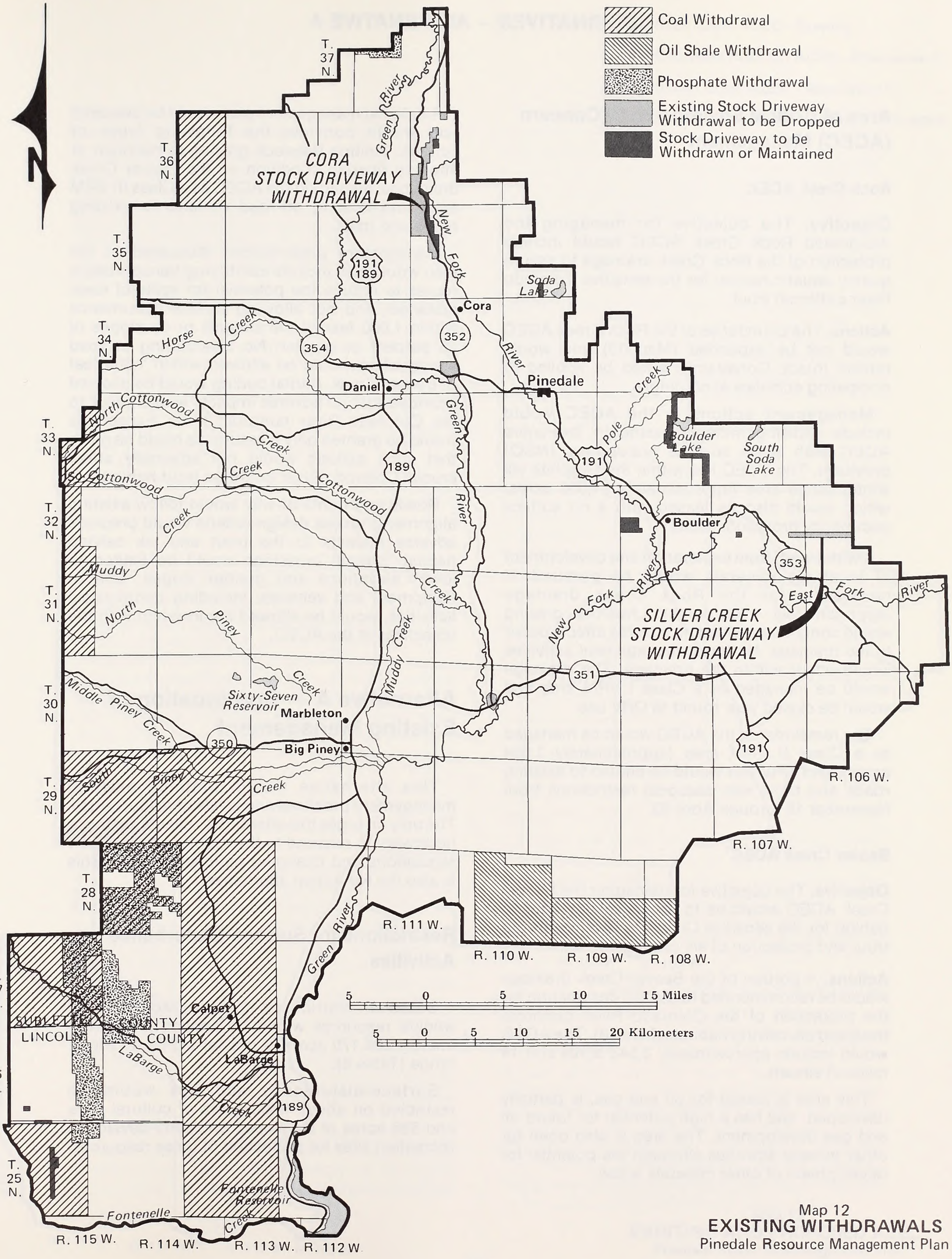
Lands actions would be pursued to enhance and maintain key wildlife habitats. State and private land exchanges to acquire crucial habitats in certain federal management situations (Rock Creek ACEC, New Fork Potholes, key riparian areas) would be pursued.

Rights-of-way would be processed in accordance with the objectives of this plan. Rights-of-way avoidance areas for surface-disturbing activities are those areas that have been identified as not suitable for surface disturbance or occupancy under the various actions described in this alternative. Such areas include, but are not limited to recreation sites and cultural sites. Approximately 12,685 acres have been identified in this category.

Rights-of-way would be restricted in identified sensitive areas such as crucial wildlife habitats or watersheds, recreation areas, or ORV restricted areas. The rights-of-way would stipulate the restrictions necessary to protect the affected resources. Approximately 433,000 acres have been identified in this category.

Areas that are not identified for avoidance or restriction are considered open to rights-of-way. Such actions would, however, comply with all BLM policy and construction requirements (Appendix C-2).

The BLM would pursue withdrawals from exploration and development of locatable minerals where necessary in support of other resource management objectives and actions. For example, the Rock Creek drainage (approximately 4,200 acres), developed and semi-developed recreation sites (approximately 585 acres) and significant cultural sites (approximately 1,100 acres) would require a withdrawal action to protect them from exploration and development of locatable minerals. Withdrawals would also be pursued for any future identified developed and semi-developed recreation sites or significant cultural sites.



Map 12

EXISTING WITHDRAWALS

Pinedale Resource Management Plan

Area of Critical Environmental Concern (ACEC) Management

Rock Creek ACEC

Objective. The objective for managing the designated Rock Creek ACEC would include protection of the Rock Creek drainage to assure quality aquatic habitat for the sensitive Colorado River cutthroat trout.

Actions. The boundaries of the Rock Creek ACEC would not be expanded (Map 13) and would remain intact. Constraints would be applied to competing activities accordingly.

Management actions in the ACEC would include allowing mineral leasing in the entire ACEC with a no surface occupancy (NSO) provision. The ACEC lies within the Graphite elk winter range area (approximately 11,000 acres) which would also be leased with a no surface occupancy provision.

A withdrawal from exploration and development of locatable minerals would be pursued, if necessary, for the Rock Creek drainage (approximately 4,200 acres). Livestock grazing would continue provided no adverse affects occur to the drainage. No forest management activities would occur within the drainage. The drainage would be managed as a Class I VRM area and would be closed year round to ORV use.

The remainder of the ACEC would be managed as a Class II VRM area (approximately 1,064 acres), and ORV use would be limited to existing roads and trails with seasonal restrictions from November 15 through April 30.

Beaver Creek ACEC

Objective. The objective for managing the Beaver Creek ACEC would be to assure quality aquatic habitat for the sensitive Colorado River cutthroat trout and protection of elk calving habitat.

Actions. A portion of the Beaver Creek drainage would be recommended for ACEC designation for the protection of the Colorado River cutthroat trout and elk calving habitats (Map 13). The ACEC would include approximately 3,548 acres and 14 miles of stream.

This area is leased for oil and gas, is partially developed, and has a high potential for future oil and gas development. The area is also open for other mineral activities although the potential for development of other minerals is low.

A detailed management plan would be prepared and would consider the following types of actions: limiting livestock grazing to maintain or improve riparian condition on the Beaver Creek drainages; managing the ACEC as a Class III VRM area; and limiting off-road vehicles to existing roads and trails.

Management prescriptions discussed in the plan would also include identifying transportation routes to reduce the potential for spills of toxic materials, and not allowing surface disturbance within 1,000 feet of the streams or on slopes of 25 percent or greater. No clearcutting or road construction would be allowed within 1,000 feet of Beaver Creek. Partial cutting would be allowed provided that no adverse impacts would occur to the Colorado River cutthroat trout. Exceptions would be granted only if assurance could be given that such actions would not adversely affect crucial Colorado River cutthroat trout habitat.

Roads and rights-of-way would follow existing alignments unless design criteria would preclude adverse impacts to the trout and elk calving habitat. Stream crossings would be limited to lower elevations and gentler slopes. Use of equipment and vehicles, including geophysical activities, would be allowed if consistent with the objectives of the ACEC.

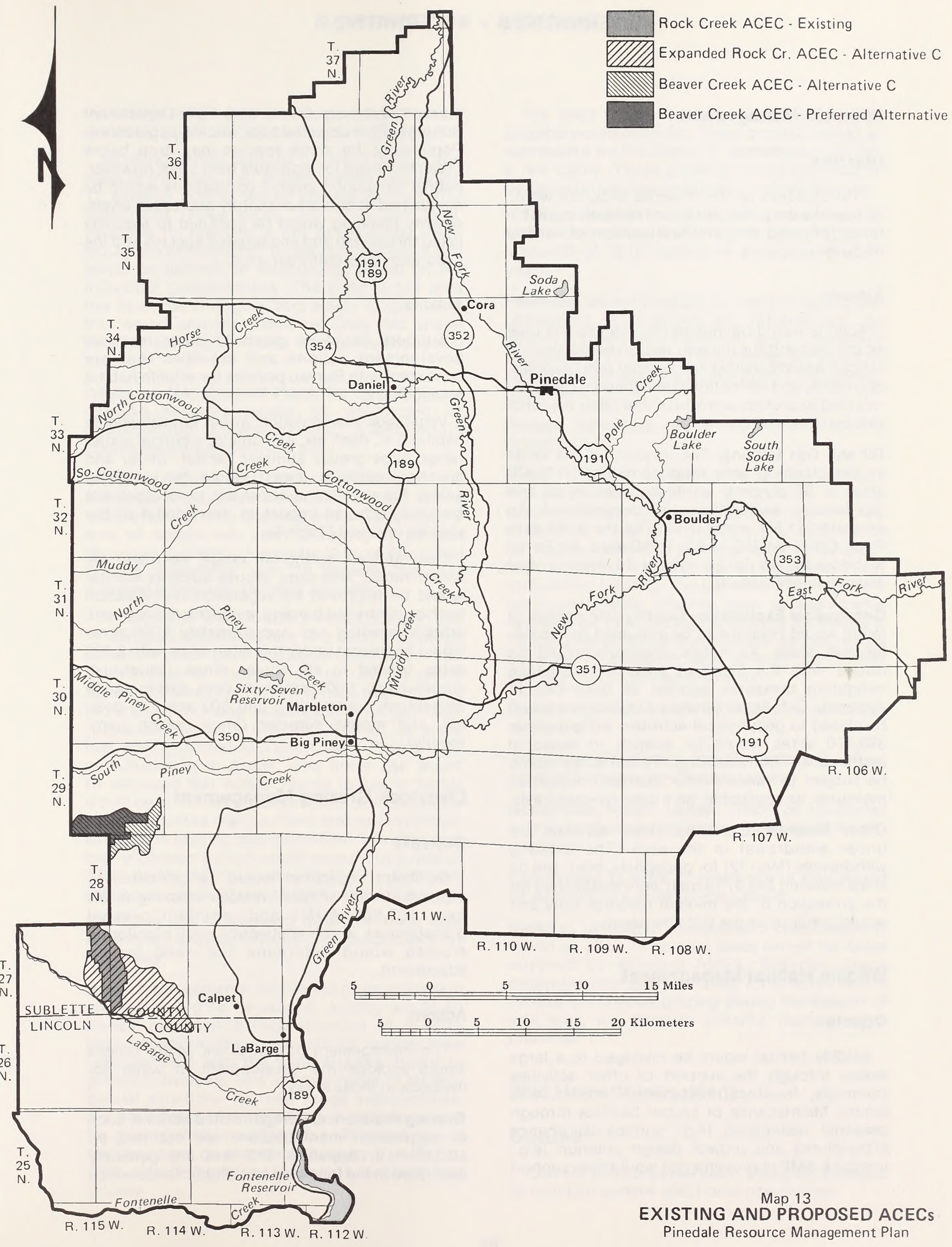
Alternative A - Continuation of Existing Management

This alternative would continue existing management practices and levels of resource use. The only changes this alternative reflects are those necessary to respond to the requirements of new regulations and changing national policies. This is also the No Action alternative.

Restrictions for Surface-Disturbance Activities

Seasonal restrictions for the protection of wildlife resources would be applied to approximately 398,170 acres of crucial big game winter range (Table 6).

Surface-disturbance activities would be restricted on about 1,100 acres of cultural sites and 585 acres of developed and semi-developed recreation sites for protection of these resources.



Map 13
EXISTING AND PROPOSED ACECs
Pinedale Resource Management Plan

Minerals Management

Objective

The objective of the minerals program would be to make the public lands and minerals available for orderly and efficient development of mineral resources.

Actions

Actions would be initiated to achieve this goal as the demand for mineral resources occurs. All actions would consider and comply with the goals, objectives, and restrictions (mitigations) currently required to protect or maintain the other resource values in the resource area.

Oil and Gas Leasing. The majority of the lands in the planning area (approximately 1,173,476 acres or 99 percent) would be open to oil and gas leasing, exploration, and development. An estimated 11,524 acres (including the 5,264-acre Rock Creek ACEC and a 6,260-acre Air Force withdrawal) would be closed to leasing and development (Table 7).

Geophysical Exploration. Geophysical notices of intent would continue to be evaluated on a case-by-case basis. All notice approvals would be issued with the standard surface-disturbance mitigation measures applied as described in Appendix C-1. Approximately 11,524 acres would be closed to geophysical activities while another 398,170 acres would be subject to seasonal restrictions. The remaining 775,306 acres would be subject to various other standard mitigation measures, as applicable, on a case-by-case basis.

Other Minerals. Currently, three minerals are under withdrawal in the area. The existing withdrawals (Map 12) for phosphate, coal, and oil shale (totaling 243,970 acres) were established for the protection of the mineral resource only and would continue under this alternative.

Wildlife Habitat Management

Objective

Wildlife habitat would be managed to a large extent through the support of other activities (minerals, livestock, recreation, forestry, and lands). Maintenance of crucial habitats through seasonal restrictions (e.g., surface-disturbance stipulations) and project design criterion (e.g., livestock AMP improvements) would help support current Wyoming Game and Fish Department Strategic Plan objectives for wildlife populations. Populations for some species may drop below projected levels for individual hunt units; however, habitat to support overall populations would be maintained at current or slightly decreased levels. Activity planning would be confined to federally listed threatened and endangered species and the Colorado River cutthroat trout.

Actions

Support would be given to other resource development actions and activities that are consistent with Bureau policies for wildlife habitat management.

Vegetation manipulation within crucial wildlife habitat (i.e., deer, elk, and antelope crucial winter range, sage grouse summer habitat, winter and breeding complex areas) would be restricted unless the practice is beneficial to, or does not cause an adverse impact to, the habitat of the species involved (Table 9).

Deer and elk spring/fall range, deer and elk winter range, and sage grouse summer habitat would be improved by vegetation manipulation such as controlled burning, mechanical treatment, artificial seeding, etc. Approximately 4,000 acres would be treated under this alternative, with 2,500 acres treated in elk winter range (sagebrush community); 1,000 acres in deer spring range (sagebrush community); and 500 acres in deer, elk, and moose summer range (aspen community).

Livestock Grazing Management

Objective

Sufficient vegetation would be permitted to support current annual livestock stocking levels near 107,907 AUMs and maintain present management in all allotments until monitoring studies would determine the need for an adjustment.

Actions

The management of crucial elk winter ranges would exclude the development of water for livestock in those areas.

Grazing Preference. Forage-related actions, such as vegetation manipulation, are outlined by allotment in Appendix D-5 and are generally described in the following text. Public lands which lie outside of grazing allotments (20,991 acres) would be left unallocated to livestock grazing.

Stocking levels, seasons of use, the kind and class of livestock, and grazing pattern (including 11 existing AMPs) would remain as currently authorized (Appendices D-6, D-7, and D-8). Requests for changes in any of the above items would be considered on a case-by-case basis and would be allowed or disapproved based on the individual circumstances. The trend in the area has been the changing from sheep to cattle and this would probably continue. Only two sheep permits currently involve approximately 2,400 head.

Allotment Management Plans. No new AMPs or grazing systems would be developed or implemented. Eleven existing AMPs would continue as presently managed.

Livestock Adjustments. Under this alternative, the active grazing preference would be used as the base for authorizing stocking levels. Currently, the level of nonuse has been averaging 22 percent (five-year average) (Appendix D-9) of the active grazing preference, with 78 percent (five-year average) being actively used annually.

A continued loss of AUMs would occur in the "I" category allotments due to a decline in range condition from poor livestock distribution and overall loss of forage due to the following activities. Currently, 540 AUMs have been lost due to surface disturbing activities. A reduction of 82 AUMs would also be effected to offset the lands that were patented as Desert Land Entries with no adjustment in AUMs. Wild horse use would be allocated 900 AUMs. Future losses in AUMs would be to mineral development (152 AUMs every 10 years) and to realty actions that would remove lands from grazing administration. The decrease over a 20-year period would amount to a loss of 7,550 AUMs due to surface-disturbing activities, wild horse use, and continued livestock grazing.

Grazing use adjustments would be made after monitoring studies indicate that modification is necessary.

Range Improvements. No new range improvement projects would be developed. Activity would be limited primarily to reconstruction of existing improvements, development of cooperative improvements with the State Grazing Board or private individuals, and improvements to remedy special situations. No new range improvements are anticipated. Privately-funded projects would be given priority consideration. Priorities would also be based on allotment category ("I," "M," or "C"), with "I" category allotments receiving first priority.

The need for the existing range improvement projects would continue. These projects would be maintained by the livestock permittees in all but a few cases. These projects would continue to be reconstructed as necessary in all allotments.

This alternative has a benefit to cost ratio of 1.02, which means that for each dollar invested, a benefit of $1.02 would be produced over 50 years.

Implementation Schedule. A monitoring program (Appendix D-2) would be initiated on the allotments with emphasis on the "I" category (Appendix D-5) to determine needed adjustments in livestock numbers, seasons of use, or vegetation treatments.

Forage Increases. No forage increases are anticipated.

Costs. The BLM would not fund new livestock improvements, except for projects to remedy special management situations on a case-by-case basis. This would not exclude use of BLM funds for reconstruction of developments or development of new improvements resulting from cooperative funding. The beneficial cost ratio and the consequential benefits, such as water being available for livestock and wildlife, or allowing the forage to be utilized around a water source, would be used in analyzing and funding the reconstruction of range improvements.

Combining Allotments. No allotments would be combined.

Rangeland Monitoring and Evaluation. Same as Actions Common for All Alternatives.

Nonallotted Public Lands. Tracts of unallotted bottom lands along the Green River would remain unallotted.

Conversions in Kind. Conversions in kind would be handled on a case-by-case basis.

Riparian. No special management considerations would be given to riparian areas except for areas covered by existing AMPs. Riparian areas encompassing approximately 7,138 acres would receive continuous grazing during the season of use with no special grazing management practices.

Wild Horse Management

Objective

Current wild horse use areas would be managed to maintain current wild horse populations.

Actions

Wild horse populations would be confined to their 1971 herd area locations (Map 14).

Forage would be allocated to support 25 wild horses (approximately 300 AUMs) in the South Desert pasture of the Desert Common Allotment and to support 50 wild horses (approximately 600 AUMs) in the North LaBarge Common Allotment. The existing wild horse population of about 75 horses would be maintained (25 in the South Desert pasture of the Desert Common Allotment and 50 in the North LaBarge Common Allotment).

The Interim Wild Free-Roaming Horse Management Plan for the South Desert-Figure Four Herd Area would remain in effect. A management plan would be written which would establish the necessary criteria for a viable wild horse herd management area in the North LaBarge Common Allotment.

Forest Management

Objective

The forest resource would be managed to provide a source of commercial timber products. All actions would consider and comply with the goals, objectives, and resource restrictions currently required to protect or maintain the other resource values in the area. The annual allowable timber harvest rate would be maintained at the pre-1985 level of 1.25 million board feet (mmbf).

The forest resource would continue to be managed as a source of minor forest products (houselogs, fuelwood, post poles, and Christmas trees), consistent with public demand.

Actions

The entire planning area would be managed as a single forest management unit.

The two existing forest management plans (Hoback Rim and Miller Mountain-Fort Hill), encompassing 10,881 acres, would be incorporated into the management prescriptions for the entire planning area.

Consistent with an approved allowable cut calculation completed in 1974 and supported in the Hoback Rim and Miller Mountain-Fort Hill forest management plans, approximately 25 mmbf would be harvested from an estimated 3,860 acres of commercial forest land and 1,200 acres would be precommercially thinned, over a 20-year period (Table 11). Minor forest products would be sold to the public, both personal and commercial users, on a case-by-case, demand basis. Minor forest products would continue to be sold in addition to the proposed allowable harvest level. All timber and minor forest product harvesting would be conducted in the commercial conifer and woodland forest types within acreage allocation Categories 1 and 2 (Table 16). Minor forest product harvesting would be consistent with the projected levels in Actions Common to All Alternatives.

In addition to restrictions and guidelines listed under Actions Common to All Alternatives, the following acreage allocations and restrictions would be applied to the forestry actions. Under the acreage allocation restrictions (applied to specific management activities), all forested acres in the resource area would be classified into one of four management categories. The operational limitations (applied to all forest management activities) would restrict harvest method, harvest unit size, and equipment use.

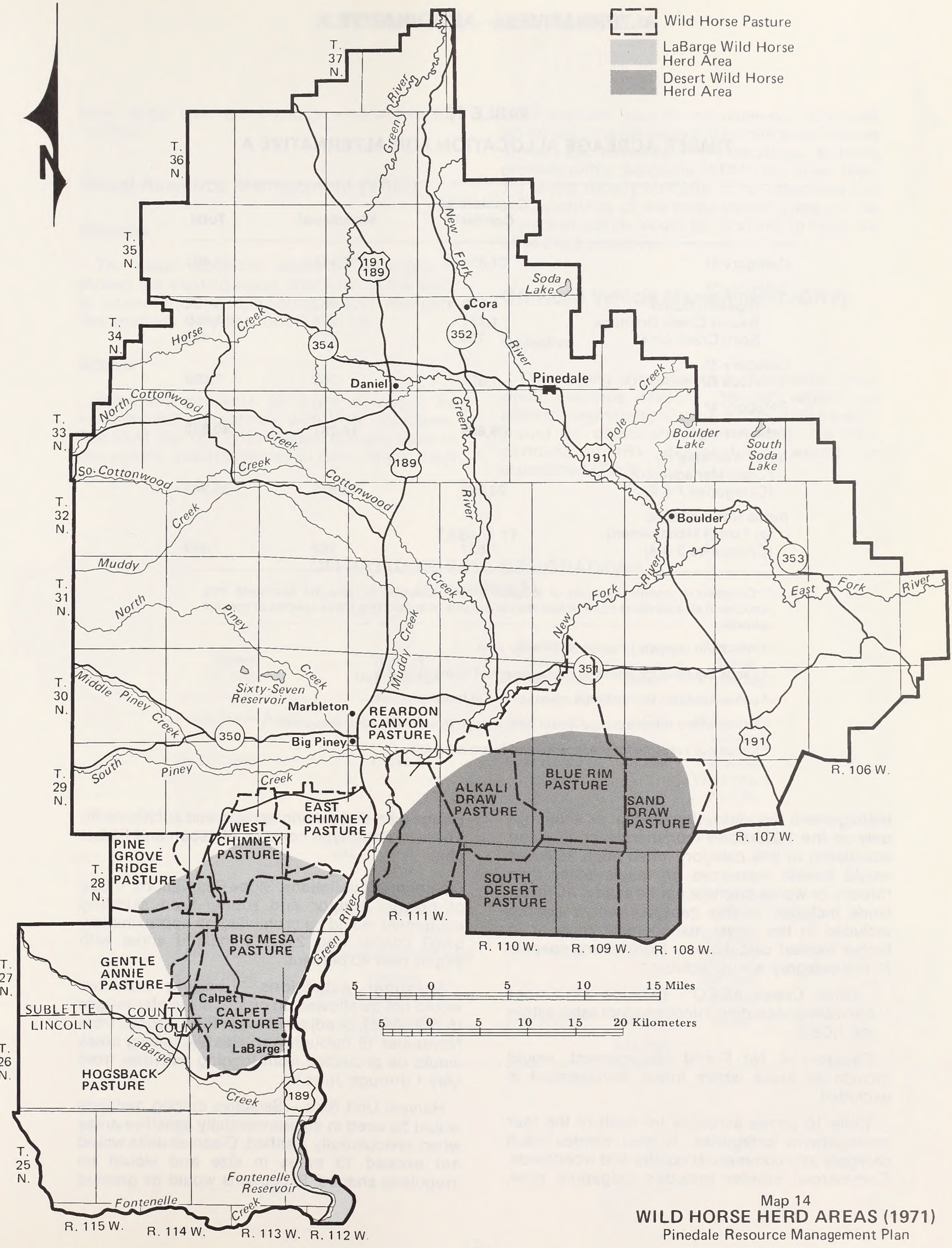
Acreage Allocation Restrictions. Category 1, Intensive Management, would include approximately 34,401 acres where the forested lands would be managed for multiple-use, but with emphasis placed on forest product utilization and forest management activities.

The only restrictions that would be applied to forest management activities (i.e., timber harvesting and thinning) would be the operational limitations and the actions common restrictions that apply to all forest management activities.

Category 2, Restricted Management, would include 4,542 acres of forested land where wildlife, watershed, and recreation resource values would be emphasized and partial cutting, extended forest crop rotations, and other forest management restrictions would be applied. Restrictions specific to Category 2 lands would include:

> Riparian Buffer - No clearcutting, or tracked- or wheeled-skidding equipment would be allowed within 200 feet of riparian areas. Selective or partial cutting with horses or small rubber-tired skidders would be allowed on slopes of 30 percent or less.
>
> Beaver Creek - No clearcutting or road construction would be allowed within 1,000 feet of the Beaver Creek drainage. Exceptions would be granted only if assurance could be given that such actions would not adversely affect crucial Colorado River cutthroat trout habitat.

Category 3, Management to Enhance or Maintain Other Resources, would allow forest



Map 14
WILD HORSE HERD AREAS (1971)
Pinedale Resource Management Plan

TABLE 16

TIMBER ACREAGE ALLOCATION FOR ALTERNATIVE A

	Commercial Conifer[1]	Woodland[2]	Total
Category 1[3]	21,858	12,543	34,401
Category 2[4]			
Riparian Buffer	1,549	883	2,432
Beaver Creek Drainage	1,377	278	1,655
Scab Creek area	184	271	455
Category 3[5]			
Rock Creek ACEC	1,637	262	1,899
Category 4[6]	0	0	0
Total Acreage	**26,605**	**14,237**	**40,842**
Acres Available for Forest Management (Categories 1 & 2)	24,968	13,975	38,943
Acres Not Available for Forest Management (Categories 3 & 4)	1,637	262	1,899

[1] Commercial conifer consists of lodgepole pine, Douglas-fir, and the spruce-fir tree species. It also contains nonstocked stands capable of supporting these species or species groups.

[2] Woodland consists of aspen and limber pine.

[3] Lands available for intensive management of forest products.

[4] Lands available for restricted management of forest products.

[5] Lands where forest acreage would be managed to enhance other resources.

[6] Lands not available for management of forest products.

management activities (harvesting or thinning) only on the 1,929 acres (commercial conifer and woodland) in this category when such activities would benefit resources or values other than forestry or would promote public safety. All forest lands included in this category would not be included in the forest management base or in timber harvest calculations. Restrictions specific to this category would include:

Rock Creek ACEC - Exclude all timber harvesting including minor product sales within the ACEC.

Category 4, No Forest Management, would include all areas where forest management is excluded.

Table 16 shows acreages for each of the four management categories. It also divides each category into commercial conifer and woodlands. Commercial conifer includes lodgepole pine, Douglas fir, Engelmann spruce, and subalpine fir. The woodland type consists of aspen and limber pine.

Operational Limitations. Slope Restrictions - Use of crawler tractor and rubber-tired skidding equipment would be prohibited on approximately 5,000 conifer and 2,800 woodland acres with slopes over 40 percent.

Seasonal restrictions - Logging activities would not be allowed on crucial elk winter ranges (5,749 acres), or adjacent to elk feedgrounds from November 15 through April 30. Elk calving areas would be protected from logging activities from May 1 through June 30.

Harvest Unit Size - Selective cutting methods would be used in environmentally sensitive areas when silviculturally justified. Clearcut units would not exceed 13 acres in size and would be irregularly shaped. Exceptions would be granted when larger clearcuts would be environmentally justified.

Visual Resource Management (VRM)

Objective

The visual resources would be managed to protect the existing visual character of the land, in accordance with existing visual resource management classifications (Table 13).

Actions

Proposed projects or actions would be evaluated for consistency with VRM objectives. The BLM has five VRM classes that are used to manage the visual resources on public lands. Each class contains specific management objectives which describe the degree of modification allowed to the basic elements of the landscape. Existing projects within designated VRM class areas (Map 15) would usually conform to the objectives and characteristics of the management class, or the project or action would be modified to meet the VRM class objective.

Off-Road Vehicle Management (ORV)

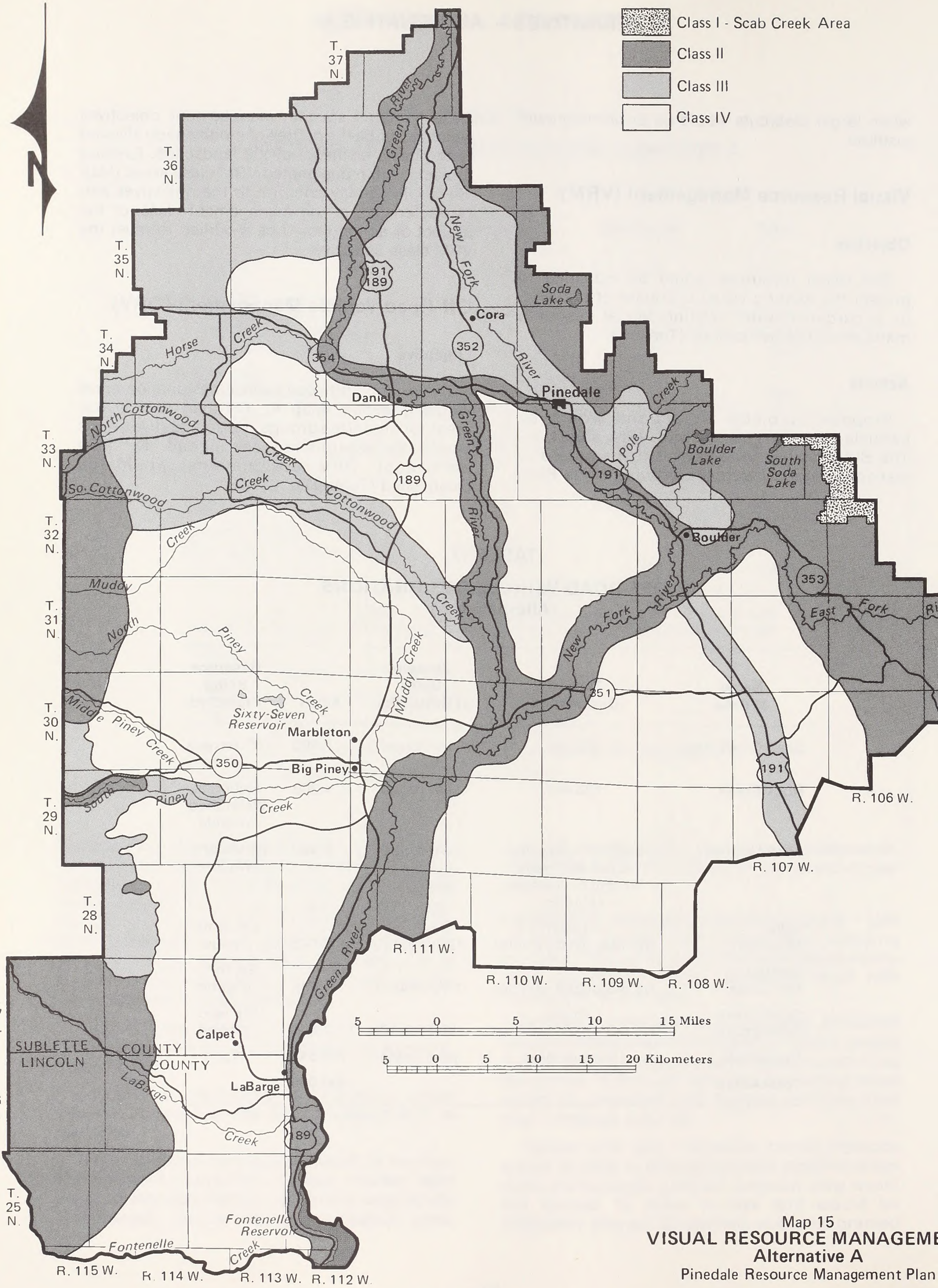
Objective

The existing off-road vehicle designation areas would continue (Map 4). Off-road vehicle use areas for organized groups and competitive events would be established as needed. No new permanent ORV designations would be established (Table 17).

TABLE 17

OFF-ROAD VEHICLE DESIGNATIONS (Alternative A)

Name of Area	Type of Designation	Season/ Dates of Restriction	Acres	Resource Being Protected
Scab Creek Area	Closed	year round	6,680	Wilderness values
Rock Creek	Closed	year round	4,200	Fisheries, Watershed, Wildlife
Lake Mountain	Limited to existing roads and trails except over-snow vehicles	year round	9,490	Watershed, Wildlife
Miller Mountain	Limited No motorized vehicles	12/01-05/01	118,543	Elk winter range
Limited Fall Creek	No motorized vehicles	12/01-04/30	714	Elk feed-ground
Scab Creek Feedground	Limited No motorized vehicles	11/15-5/15	1,870	Elk feed-ground
Remainder	Undesignated	year round	788,547	None
Total Acres			**931,000**	



Map 15
VISUAL RESOURCE MANAGEME
Alternative A
Pinedale Resource Management Plan

Actions

Areas needing ORV restrictions for the protection of resources would be designated on an emergency and short-term basis. Resources needing protection from off-road vehicle impacts would direct the type and degree of protection necessary.

The areas shown in Table 17 would have seasonal and(or) yearlong restrictions in force for off-road vehicles.

Recreation Management

Objective

The recreation program would be managed to protect and maintain existing recreation sites, emphasize management of the Green and New Fork Rivers and the Boulder Lake area (Map 8), and continue to provide high quality dispersed recreation opportunities.

Actions

Undeveloped or semi-developed recreation sites that currently receive heavy use would have sufficient facilities developed to provide safe and sanitary conditions.

Campgrounds and other recreation sites would be open to exploration and development of locatable minerals and to livestock grazing.

A recreation area management plan would be prepared for the Upper Green and New Fork Rivers to provide measures for adequate public access and proper development of these areas.

The currently applied 30-day camping limit would remain in effect outside of established campgrounds. A 14-day camping limit would continue to be applied at established campgrounds.

Cultural Resource Management

Objective

The cultural resources program would be managed to: 1) protect significant cultural resources as prescribed by law and regulation; 2) minimize conflicts with other resource uses; 3) reduce cultural resource damage from surface-disturbing projects and multiple-use activities; and 4) mitigate adverse effects on significant cultural resources.

Actions

The cultural resources program initiates few actions and would continue to react to other program demands.

Erosion at site 48SU301 would be stabilized.

A cultural resources activity plan would be developed for site 48LN300, covering approximately 800 acres. The purpose of the plan would be to record the site and its boundaries, provide for long-term management, and reduce vandalism.

In implementing the BLM Oregon/Mormon Pioneer National Historic Trails Management Plan, first priority would be given to marking and signing the primary trail routes in the area, involving about 35 linear miles of trails located on BLM-administered surface. Second priority would be to design and erect interpretive signs at the Lander Trail crossing of the Green and New Fork Rivers. Other Trails Plan actions would be implemented as funding and staffing allow.

All cultural sites would be open to mineral entry; however, surface disturbance would be limited as described in restrictions for surface-disturbance activities.

Lands Management

Objective

The lands objective would be to ensure that the various and diverse lands and realty actions occurring on the public lands protect the public's interest in those lands and are properly authorized. The right to occupy or acquire the public lands would be authorized through appropriate realty actions in a manner which would maximize the efficiency and consistency of public land management. These land use authorizations would ensure that the activities are within the realm of sound resource management practices, in the public interest, and would not cause undue or unnecessary damage to other resources and to the natural environment.

Actions

Land Tenure Adjustment. Disposal actions would convey the mineral estates with the surface where mineral values are not known to exist or where retaining the mineral rights would interfere with or preclude nonmineral development.

Lands containing soils having irrigability classes "D" and "nonirrigable" would be retained in federal ownership.

Classification and Multiple Use (CMU). Classification and Multiple Use Act (CMU) public land classification orders (W-25810, W-19140, and W-12668) classified approximately 780,000 acres of public land in the planning Area for retention in federal ownership, and segregated them from sale under Section 2455 of the Revised Statutes (43 U.S.C. 1171), and from entry under the agricultural laws. These classifications were terminated by the BLM on October 27, 1981; November 20, 1981; and July 21, 1982, respectively. Should the BLM prevail on appeal of Judge Pratt's preliminary injunction, issued in *National Wildlife Federation (NWF) versus Robert F. Burford, et al.* (Civil Action No. 85-2238 D.C.D.C.), this termination will have been effective. The descriptions and analyses for the Preferred Alternative and Alternatives B and C consider the classification on these lands to be terminated.

The resource area would be classified into four categories for lands actions which would remain in effect (Map C): 1) multiple use management, 2) disposal, 3) segregated from general mining laws, and 4) Desert Land Entries.

Approximately 780,000 acres (84 percent) of the planning area would be retained for multiple use management and would be segregated from appropriation under the agricultural land laws (43 U.S.C. Parts 7 and 9; 25 U.S.C. Sec. 334) and from sale under Section 2455 of the Revised Statutes (43 U.S.C. 1171). Further segregations other than the 780,000 acres include:

Approximately 36,000 acres (4 percent) of the planning area would be segregated from general mining laws (30 U.S.C. 21) to protect cultural values and recreation sites.

Approximately 2,000 acres in Sublette and Lincoln counties (less than 1 percent of the area) would be available for disposal consideration through public land laws.

Approximately 45,000 acres (5 percent) of the planning area, would be available for disposal only through Desert Land Entries.

Lands not specifically classified as suitable for sale may be disposed of only by exchange (Map C).

The existing stock driveway withdrawals (Map 12) would remain in effect. The portions of the existing withdrawals that are not actively utilized for stock driveways, would remain under the constraints of the withdrawal.

Rights-of-way would be limited by or conditioned with the Wyoming BLM standard surface-disturbance mitigation measures (Appendix C-1).

Linear rights-of-way such as pipelines, powerlines, roads, and cables would usually not be allowed within areas identified as no surface occupancy and no lease areas (approximately 6,260 acres, in addition to those identified in Actions Common to All Alternatives). Some rights-of-way may be allowed following a case-by-case analysis if such rights-of-way would not create surface disturbance, would have high potential for reclamation, would create short-term impacts, or would be compatible with resources requiring protection.

Areas requiring mitigations and restrictions would be considered limited areas for surface-disturbing activities such as rights-of-way. These restrictions include, but would not be limited to: seasonal restrictions for wildlife and watershed; slope; and mitigation measures necessary to prevent degradation of cultural, historical, and recreation sites. Approximately 405,000 acres have been identified in these categories.

Areas that require no mitigations or restrictions would be considered open for rights-of-way and surface-disturbing activities.

Area of Critical Environmental Concern (ACEC) Management

Rock Creek ACEC

Objective. The objectives for managing the designated ACEC would include protection of the Rock Creek drainage to assure quality aquatic habitat for the Colorado River cutthroat trout.

Actions. The boundaries of the ACEC would remain unchanged. The 5,264-acre ACEC would be closed to mineral leasing and development.

Livestock grazing would continue provided no adverse affects occur to the drainage. No forest management activities would occur within the ACEC (approximately 5,264 acres).

The ACEC would be managed as a Class II VRM area. The area within the ACEC drainage would be closed year round to ORV use. The area outside the ACEC would be subject to seasonal restrictions.

Beaver Creek ACEC

Objective. The Beaver Creek drainage would be managed to protect Colorado River cutthroat trout habitat.

Actions. Beaver Creek would not be recommended for ACEC designation. Livestock grazing would continue and the area would remain in its current condition. No clearcutting or road construction would be allowed within 1,000 feet of the drainages. Exceptions would be granted only if assurance can be given that such actions would not adversely affect crucial Colorado River cutthroat trout habitat.

The area would be managed as a Class III VRM area. Off-road vehicle use would be undesignated.

Alternative B

This alternative would emphasize utilization and development of resources and generally produce the greatest revenues. Public lands would be made available primarily for use and development. Resource trade-offs would favor maximizing resource and land uses such as mineral development, livestock grazing, developed recreation sites, timber harvesting, and maximum ORV use. Resource and environmental values would, however, still be protected to the extent required by applicable laws, regulations, and policies. Mineral development would generally have priority over other resource uses such as grazing and timber.

Restrictions for Surface-Disturbance Activities

Surface disturbance would be restricted on about 1,100 acres of cultural sites.

No surface disturbance would be allowed on developed and semi-developed recreation sites (about 585 acres).

Seasonal restrictions for the protection of wildlife habitat would be applied on about 398,170 acres of crucial big game winter range (Table 6).

Minerals Management

Objective

The minerals program would be managed to make public lands and federal mineral estate available for orderly and efficient development of mineral resources with emphasis on maximizing mineral revenues and promoting development.

Actions

Oil and Gas Leasing. All mineral estate lands in the resource area, approximately 1,185,000 acres, would be open to oil and gas leasing (Table 7). The 5,264-acre Rock Creek ACEC would be leased with a no surface occupancy stipulation.

Geophysical Exploration. Geophysical notices of intent would be evaluated on a case-by-case basis. All authorizations would be issued with appropriate surface-disturbance stipulations applied (Appendix C-1). Approximately 398,170 acres of the planning area would be subject to seasonal restrictions while the remaining 786,830 acres would be affected by various vehicle use limitations.

Other Minerals. The existing withdrawals for protection of phosphate, coal, and oil shale would be revoked. These minerals no longer need such protection as they would also be made available for development under mineral leasing regulations. Mineral leasing is a discretionary action and would be subject to the same resource constraints as established for other surface-disturbing activities (Appendix C-1). These phosphate, coal, and oil shale lands would be open to mining claimants under the same conditions as all other uses of public lands. Due to the low potential for and lack of interest in these minerals in the area, no leasing, location, or development is expected to occur in the foreseeable future.

Wildlife Habitat Management

Objective

Wildlife habitat would be managed for compatibility of other uses. Crucial habitats would be managed to maintain wildlife populations at a level below current Wyoming Game and Fish strategic plan levels. Activity planning would be confined to federally listed threatened and endangered species and the Colorado River cutthroat trout.

Actions

Wildlife habitat management would be managed to support resource development activities such as mineral leasing, livestock grazing and timber harvest as first priority.

The East Front aquatic habitat management plan would be implemented.

Livestock Grazing Management

Objective

The vegetation resource would be managed to improve ecological range condition in areas with unacceptable range condition, while maintaining range condition on acceptable areas with an overall objective of increasing available forage and stocking levels for livestock grazing.

Actions

Livestock grazing would be prohibited on developed and semi-developed recreation sites.

Grazing Preference. The main emphasis would be the production of forage for consumption by livestock. The overall objective would be to improve range condition on all "I" category allotments and prevent a decline in range condition on all other allotments. The increased forage would be allocated to livestock and a limited amount for the protection of wildlife, watershed, and soil resources. The present active grazing preference of 107,907 AUMs would be increased by 11 percent (or 11,751 AUMs) in "I" category allotments, to 119,658 AUMs by implementing the actions shown in Appendix D-5.

Allotment Management Plans. Allotment management plans (AMPs) would be developed for "I" allotments in approximately the order of priority shown in Appendix D-5. Existing AMPs would continue to be implemented or modified as needed to resolve problems that have arisen since implementation of the AMP.

Range Improvements. All new range improvement projects would be designed and constructed to benefit livestock grazing, with other resources such as wildlife receiving secondary consideration. Types and numbers of projects to be proposed by allotment are summarized in Appendix D-5. Range improvements would be authorized on all allotments in order of priority (i.e., "I," "M," and "C"). The benefit cost ratio of projects would be analyzed by allotment prior to construction. New range improvements would include approximately 120,862 acres of vegetation manipulation, 33 new livestock water facilities and 58 miles of new fence.

This alternative has a benefit to cost ratio of 1.53, which means that for each dollar invested, a benefit of $1.53 would be produced over 50 years. The benefit cost ratio also reflects the benefit or impact on wildlife.

Approximately 120,862 acres of sagebrush would be proposed for manipulation in the "I" allotments. In the "M" allotments, approximately 66,767 acres of sagebrush (Appendix D-5) would be treated. This represents about 30 percent of the sagebrush that meets the treatment criteria (25 percent canopy cover). The quantity and location of brush control would be limited by the constraints in Table 9.

Vegetation manipulation proposals in the "M" allotments could be financed by the BLM after the "I" allotments have been improved. Vegetation manipulation could be financed at any time by the permittees or State Grazing Board monies.

Forage Increases. Long-term forage increases obtained through vegetation manipulation and through permitting livestock grazing on unallotted public lands would increase the AUMs by 21,419. These AUMs would help offset the forage loss that occurs from oil and gas and realty actions (see Alternative A, Livestock Grazing, Livestock Adjustment). A net gain of 11,751 AUMs would be realized in 20 years.

Combining Allotments. The East of DLE (2136) and Gilchrist DLE (2140 intensity (trend, utilization, climate, and actual use). The remaining "M" and "C" category allotments would be monitored as priorities warrant and to a level sufficient to meet allotment objectives. Ecological site inventory would be continued as monies permit until the entire resource area is completed.

Nonallotted Public Lands. Approximately 2,396 AUMs on 20,991 acres of unallotted public lands would be permitted for grazing.

Conversions in Kind. Conversions in kind of livestock would occur only after a study of suitability for conversion has been completed.

Riparian. Riparian areas would be managed to maintain or improve the range condition through livestock management practices. Grazing practices would be directed toward stabilization levels and maximizing forage production without a decline in trend.

Wild Horse Management

Objective

Resolve conflicts for water and forage between wild horses and other resource uses.

Actions

All wild horses from the LaBarge Herd Management Area and the Pinedale Resource Area portion of the Desert Herd Management Area, would be removed and made available for adoption through the BLM Adopt-A-Horse Program. The wild horse herd area designation would be removed and the Desert herd area boundary would be modified.

Forest Management

Objective

The forest resource would be managed to increase forest productivity and to meet individual demands for minor forest products, by harvesting stands with high insect and disease levels, by harvesting mature and overmature stands, by thinning overstocked stands, and by reforesting past harvest or burned areas that are inadequately stocked.

Actions

The entire resource area would be managed as a single forest management unit.

Based on data derived from the adjusted operational limits solution (USDI 1985a), the commercial conifer in the intensive and restricted management categories would be managed to produce and sustain a 20-year harvest level of 37.7 million board feet from 5,820 acres of timber harvesting. Consistent with the objective, stands with high insect or disease levels and stands in a mature or overmature condition would receive the highest priority for harvesting. The proposed harvest level includes the sale of minor forest products. Minor forest product harvesting would also be conducted in the commercial conifer and woodland forest types within acreage allocation Categories 1 and 2 and would be consistent with the levels projected in the Actions Common to All Alternatives.

In addition to timber harvesting, approximately 1,200 acres would be precommercially thinned during the next 20 years (Table 11).

In addition to the restrictions and guidelines listed in Actions Common to All Alternatives, the forest management actions would reflect the allocation of certain acres to benefit or maintain other resource values and would be subject to specific operational limitations. The acreage allocation categories are the same as those described in the Preferred Alternative but individual allocations and acres affected may vary. Table 18 shows the commercial conifer and woodland acreage distributions for each of the four categories. The following is a description of the individual allocations and the operational limitations that would be applied in this alternative.

Acreage Allocation Restrictions. Category 1, Intensive Management, would have approximately 36,430 commercial acres conifer and woodland that would be available for intensive forest management activities including timber harvesting and thinning. It would be subject to the restrictions listed in the Actions Common to All Alternatives and under the Operational Limitations in this section. Due to a lack of commercial demand, the woodland acreage would primarily be used as a source of material (predominantly fuelwood) on an individual request basis (refer to Actions Common to All Alternatives for estimated harvest levels).

Category 2, Restricted Management, would include 1,984 commercial conifer and 1,126 woodland acres that would be available for various forestry activities, including harvesting and thinning but would be subject to the following restrictions:

Riparian Buffer - Generally, no clearcutting or track/wheel-type equipment operations would be allowed within a 100-foot buffer of a riparian area. Exceptions would require site-specific environmental analysis.

Elk Feedgrounds - No more than a 10 percent reduction in forest cover would be allowed in the crucial zone surrounding the elk feedgrounds (Franz, North Piney, and Finnegan).

Category 3, Management to Enhance or Maintain Other Resources, would be the same as Actions Common to All Alternatives.

TABLE 18

TIMBER ACREAGE ALLOCATIONS FOR ALTERNATIVE B

	Commercial Conifer[1]	Woodland[2]	Total
Category 1[3]	23,499	12,931	36,430
Category 2[4]			
Riparian Buffer	817	449	1,266
Elk Feedgrounds	783	406	1,189
Scab Creek area	184	271	455
Category 3[5]	0	0	0
Category 4[6]			
Rock Creek ACEC (drainage only)	1,322	180	1,502
Total Acreage	**26,605**	**14,237**	**40,842**
Acres Available for Forest Management (Categories 1 & 2)	25,283	14,057	39,340
Acres Not Available for Forest Management (Categories 3 & 4)	1,322	180	1,502

[1] Commercial conifer consists of lodgepole pine, Douglas-fir, and the spruce-fir tree species. It also contains nonstocked stands capable of supporting these species or species groups.

[2] Woodland consists of aspen and limber pine.

[3] Lands available for intensive management of forest products.

[4] Lands available for restricted management of forest products.

[5] Lands where forest acreage would be managed to enhance other resources.

[6] Lands not available for management of forest products.

Category 4, No Forest Management, would include 1,502 combined commercial conifer and woodland acres that would be subject to the following limitations or exclusions:

Rock Creek ACEC - Exclude all forest management activities within the Rock Creek drainage in the ACEC. Management activities would be allowed on those acres outside the drainage.

Operational Limitations. Operational limitations consist of the following three categories:

1. Slope Restrictions - Tree removal (log skidding/yarding) operations on slopes steeper than 45 percent would be limited to technologically and environmentally acceptable methods such as cable yarding or horse skidding.
2. Seasonal Use - Same as Alternative A.
3. Harvest Unit Size - Clearcut harvest units, generally, would not exceed 40 acres in size.

Visual Resource Management (VRM)

Objective

Visual resource management would emphasize protection of only the most important visual values such as ACECs and recreation sites. Visual resource management would be managed in support of minerals, livestock, forestry, and lands.

Actions

Visual resource management classifications would be modified to accommodate resource production by establishing classes based upon manageability rather than just inventory. Activity would be allowed in the changed rating areas that may not have been allowed under previous classifications. The VRM classification acreages and boundaries would become as shown on Table 13 and Map 16. The established visual management class for some areas would be lower than the current inventory classification.

Off-Road Vehicle (ORV) Management

Objective

Off-road vehicles would be managed to accommodate existing uses and provide for additional use areas. The current ORV closures and limitations as described in Alternative A would remain. The remainder of the area would be designated as either "open," "closed," or "limited" to ORV uses. Only the most important wildlife ranges and watershed areas would have ORV restrictions placed on them (Table 19).

Actions (refer to Map 17)

The ORV restrictions which are currently implemented for the benefit of wildlife would remain in place.

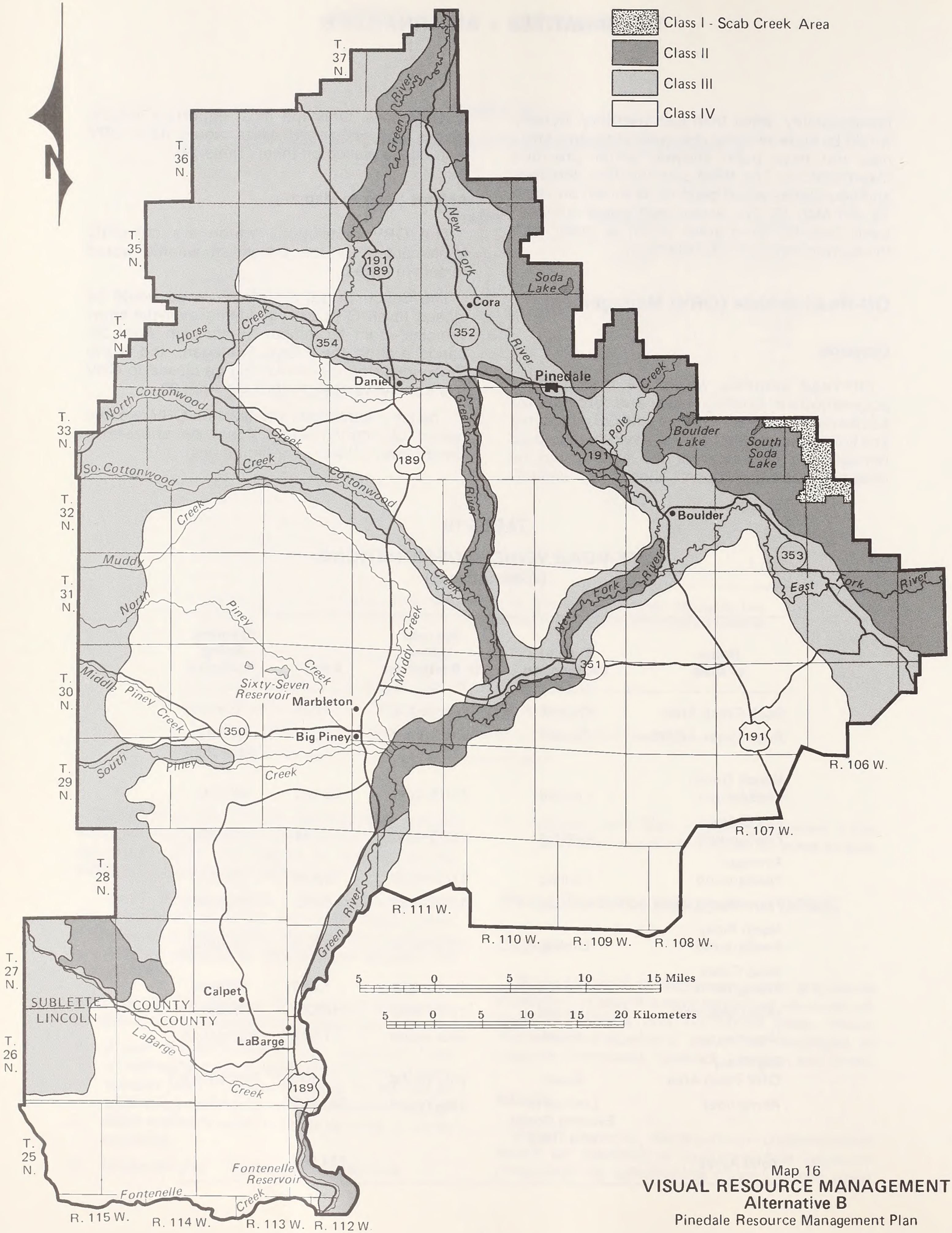
The Bench Corral elk winter range would be closed to all ORV use, including over-the-snow vehicles, from November 15 through April 30. Lands around the Franz, Finnegan, and North Piney feedgrounds would also be closed to ORV use from November 15 through April 30.

The only additional limitations on ORV use that would be implemented would be short-term "emergency" closures or limitations.

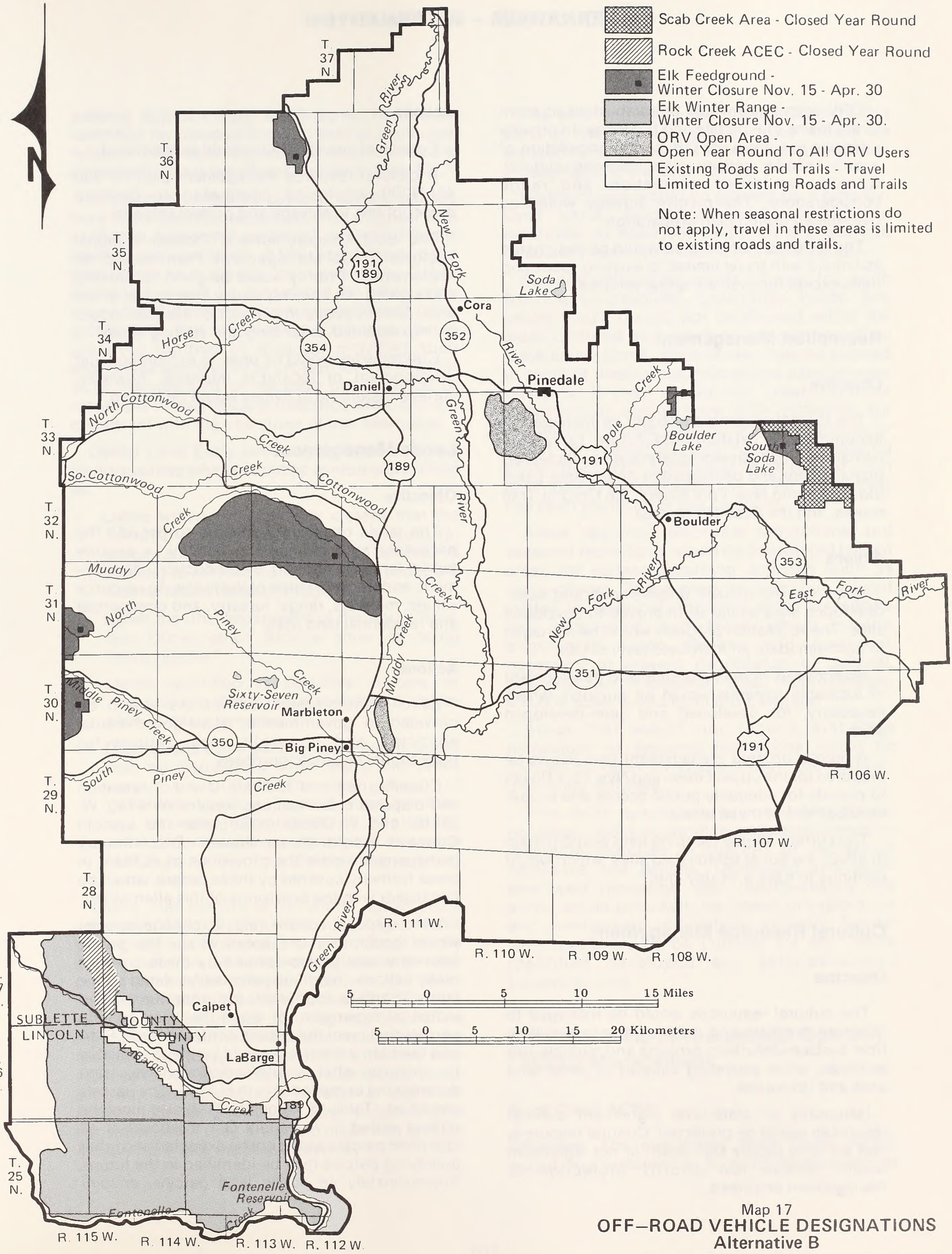
TABLE 19

OFF-ROAD VEHICLE DESIGNATIONS (Alternative B)

Name of Area	Type of Designation	Season/ Dates of Restriction	Acres	Resource Being Protected
Scab Creek Area	Closed	year round	7,636	Wilderness
Rock Creek ACEC	Closed	year round	4,200	Wildlife, Watershed
Bench Corral Feedground	Limited	11/15-4/30	33,120	Wildlife
Fall Creek Feedground	Limited	11/15-4/30	714	Wildlife
Finnigan Feedground	Limited	11/15-4/30	2,698	Wildlife
Franz Feedground	Limited	11/15-4/30	3,170	Wildlife
North Piney Feedground	Limited	11/15-4/30	2,519	Wildlife
Scab Creek Feedground	Limited	11/15-4/30	1,870	Wildlife
Miller Mountain	Limited	11/15-4/30	118,543	Wildlife
Mount Airy	Open	year round	7,542	Recreation
Big Piney ORV Open Area	Open	year round	1,600	Recreation
Remainder	Limited to Existing Roads and Trails	year round	747,388	All
Total Acres			**931,000**	



Map 16
VISUAL RESOURCE MANAGEMENT
Alternative B
Pinedale Resource Management Plan



Map 17

OFF–ROAD VEHICLE DESIGNATIONS

Alternative B

Pinedale Resource Management Plan

ORV open areas would be established adjacent to the towns of Pinedale and Big Piney, to provide intensive use areas for ORVs after completion of a site specific activity plan involving cultural, wildlife, watershed, recreation, and range considerations. The precise acreage would be determined during plan preparation.

The remainder of the area would be designated as limited with travel limited to existing roads and trails except for over-the-snow vehicles.

Recreation Management

Objective

The recreation program would be managed to accommodate existing and future recreation demands. Emphasis would be placed on increased management and development on Boulder Lake, the Green and New Fork Rivers, the Oregon Trail routes, and the Scab Creek area.

Actions

Some heavily utilized undeveloped and semi-developed sites would be improved to developed sites. The recreation program would be managed to accommodate an increased level of use.

Withdrawals from exploration and development of locatable minerals would be pursued, where necessary, for developed and semi-developed sites.

A recreation area management plan would be prepared for the upper Green and New Fork Rivers to provide for adequate public access and proper development of these areas.

The current 30-day camping limit would remain in effect, except at established sites, which would continue to have a 14-day limit.

Cultural Resource Management

Objective

The cultural resources would be managed to minimize conflicts and reduce damage resulting from surface-disturbing projects and multiple-use activities, while providing support to other land uses and resources.

Nationally or state-level significant cultural resources would be protected. Cultural resources that are only locally significant or not significant would receive low priority protection or management emphasis.

Actions

Erosion at site 48SU301 would be stabilized.

A cultural resource management plan for site 48LN300 would be completed to develop prescriptions to salvage and protect this site.

The BLM Oregon/Mormon Pioneer National Historic Trails Management Plan would be implemented. Priority would be given to marking and signing the known primary trail routes in the area. Other actions in support of the plan would be implemented as funding and staffing allow.

Cultural sites would be open to exploration and development of locatable minerals, however, surface-disturbing activities would be limited.

Lands Management

Objective

The lands objective would be to provide the necessary authorizations to occupy or acquire public lands in support of production, development, and transportation of the following resource values: minerals, range, forestry, and commercial and residential land uses.

Actions

Land with minimal restrictions would be provided to governmental, quasi-governmental agencies, and nonprofit organizations for recreational or public purposes.

Classification and Multiple Use Act retention and disposal classifications (orders W-19140, W-25810, and W-12668) in Sublette and Lincoln Counties would be terminated. Discretionary management under the provisions of FLPMA, in areas formerly covered by these orders, would be consistent with the provisions of this alternative.

Land disposal actions (e.g., exchange or sale) would occur in those areas where the public interest would best be served by these types of realty actions. Identified parcels of isolated public lands, parcels identified for community and industrial expansion, or areas that may contain parcels that meet the criteria contained in FLPMA and the plan objectives, would be made available for disposal after a site-specific analysis and determining compliance with FLPMA. The parcels identified, (Table 15, Appendix G-2) also meet the criteria stated in Appendix G-1. Disposal of all identified parcels would not be expected and other qualifying parcels may be identified in the future. Approximately 48 public land parcels, encompassing approximately 5,300 acres, have been identified for disposal through sale or exchange. Another 1,000 acres adjacent to communities are expected to meet the disposal criteria (Map 11).

In addition to the 48 parcels, several parcels have been identified as available for disposal with exchange being the preferred method. Parcels totaling approximately 8,000 acres have been identified as suitable for exchange. Other exchanges would be considered for other lands needed to support the recommendations of other activities in this alternative. Exchange is the preferred method of disposal provided such exchanges are needed to provide for the efficient BLM management of existing public lands or resources in the Pinedale Resource Area, and are consistent with the objectives of this alternative.

Desert Land Entry petition-applications would be disqualified when the public lands are identified as:

1. Lands within the capability classes that the Department of Agriculture, Agricultural Stabilization and Conservation Service, is seeking to remove from cultivation under the Conservation Reserve Program.
2. Lands that the Department of the Agriculture, Soil Conservation Service show as being "nonirrigable."
3. Lands identified as sensitive, unique, or necessary to fulfill the management objectives of this alternative.
4. Desert Land Entry petition applications would also be disqualified when the public lands would be utilized for the growth of government price-supported crops, or when use of water supplies would deplete an underground water supply beyond its annual recharge ability, thus threatening existing water users.

Lands that contain or lie within active stock driveways (Map 12) that are continuing to serve their designated purpose, shall continue to be segregated from all forms of disposal under the public land laws. Mineral locations on stock driveways would be handled under 43 CFR 3815. All other applications for disposal would be rejected by the authorized officer. Applications for the exchange of such lands, which show that they are filed for the improvement of a particular stock driveway and applications to lease or use such lands under the public land laws would receive consideration if they are compatible with and do not interfere with the stock driveway.

The stock driveway withdrawals that are not serving their designated purpose would be revoked because they do not contain justification for segregating the public lands.

Rights-of-way would be granted on a case-by-case basis. Surface-disturbing mitigation measures, as described under oil and gas and other activities in this alternative, would apply.

Surface-disturbing rights-of-way for such facilities as pipelines, powerlines, roads, and cables would usually not be allowed within the areas identified as no surface occupancy and no lease areas. Some rights-of-way may be allowed in some of these areas, following a case-by-case analysis, if they would not create surface disturbance, would have high potential for reclamation, would create short-term impacts, or would be compatible with resources requiring protection. No additional acreage to that described in Actions Common to All Alternatives has been identified in this category.

Areas requiring elaborate mitigations and seasonal restrictions would be considered limited areas for surface-disturbing activities such as rights-of-way. These areas include, but are not limited to, seasonal restriction areas for wildlife and watershed, and areas which require engineered slope designs and measures necessary to prevent degradation of cultural, historical, and recreation sites. Approximately 405,000 acres would be in this category.

Areas that would not require elaborate mitigations or seasonal restrictions would be considered open for rights-of-way and surface-disturbing activities.

The BLM would pursue withdrawals, if necessary, from exploration and development of locatable minerals in support of recreation objectives and actions. Developed and semi-developed recreation sites (approximately 585 acres) would potentially be closed to exploration and development of locatable minerals. Similar withdrawals would be pursued for any future identified developed and semi-developed recreation sites.

Area of Critical Environmental Concern (ACEC) Management

Rock Creek ACEC

Objective. The designated Rock Creek ACEC would be maintained to promote riparian habitat management and protect the Colorado River cutthroat trout.

Actions. The boundaries of the Rock Creek ACEC would not be expanded and would remain intact.

Management actions in the ACEC would include allowing mineral leasing in the entire ACEC (5,264 acres) with a no surface occupancy (NSO) provision. Livestock grazing would continue provided no adverse affects occur to the drainage. All forest management activities would be excluded within the Rock Creek drainage in the ACEC. The drainage would be closed year round to ORV use. The entire ACEC would be managed as a Class II VRM area.

Forest management activities would be allowed on those acres outside the drainage (approximately 1,064 acres). The remainder of the area, outside of the drainage, would also be limited to ORV use, with seasonal restrictions from November 15 through April 30 and travel would also be limited to existing roads and trails.

Beaver Creek ACEC

Objective. The objective for managing the Beaver Creek drainage would be to protect Colorado River cutthroat trout habitat.

Actions. Beaver Creek would not be recommended for ACEC designation. The area would remain open for mineral exploration and development. Livestock grazing would continue and the area would remain in its current condition. No clearcutting or road construction would be allowed within 1,000 feet of the drainages. Exceptions would be granted only if assurance can be given that such actions would not adversely affect crucial Colorado River cutthroat trout habitat.

The area would be managed as a Class III VRM area, and off-road vehicle use would be limited to existing roads and trails.

Alternative C

This alternative would emphasize maintenance or improvement of environmental quality. While resource uses and developments would still occur, priority of land use allocations would be directed toward maintenance of the natural environment. Resource trade-offs would favor protection of renewable resources through more restrictive stipulations and authorizations. This alternative would allow for greater protection and enhancement of wildlife habitat, watershed, water quality, air quality, paleontological resources, wild horses, VRM, and cultural resources. Other activities would be allowed, provided that the initial goals of this alternative could be met.

Restrictions for Surface-Disturbance Activities

No surface occupancy would be allowed on about 1,100 acres of cultural sites and on about 585 acres of developed and semi-developed recreation sites (Map 8).

No surface disturbance would be allowed within 1,000 feet of all streams in the Beaver Creek area.

Seasonal restrictions for the protection of wildlife resources would be applied to approximately 578,850 acres of crucial and noncrucial big game winter range (Table 6).

Minerals Management

Objective

The objective of the minerals program would be to make public lands and federal mineral estate available for orderly and efficient development of mineral resources while providing maximum protection and enhancement of the natural environment.

Actions

Oil and Gas Leasing. The majority of the lands in the planning area, approximately 1,179,736 acres (about 99 percent), would be open to oil and gas leasing while 5,264 acres in the Rock Creek ACEC would be closed to leasing (Table 7).

Geophysical Exploration. Geophysical notices of intent would be evaluated on a case-by-case basis. All authorizations would be issued with appropriate surface-disturbance mitigation requirements applied as specified in Appendix C-1. Approximately 5,264 acres would be closed to geophysical activity. The remaining 1,179,736 acres would be subject to various limitations (e.g. vehicle use restrictions) including 578,850 acres subject to seasonal limitations.

Other Minerals. The existing withdrawals for phosphate, coal, and oil shale would be revoked. These minerals no longer need such protection as they are now made available for development under mineral leasing regulations. Mineral leasing is a discretionary action and would be subject to the same resource constraints as established for other surface-disturbing activities. These phosphate, coal, and oil shale lands would also be open to mining claimants under the conditions of as all other uses of public lands. Due to the low potential and lack of interest for these minerals in the area, no leasing, location, or development would be likely to occur.

Gravel removal in riparian or other crucial wildlife habitat would be avoided.

Watershed Management

Objective

Watershed management would be directed toward maintaining and improving watershed condition.

Actions

A watershed management plan would be prepared on the Tip Top watershed to reduce erosion and channel degradation by stabilizing 54 acres.

A watershed/recreation plan would be prepared on the Stuart Point-Mount Airy area to reduce sedimentation and provide for ORV use as well (approximately 5,424 acres).

Wildlife Habitat Management

Objective

Wildlife habitat management would be oriented toward maintenance of wildlife populations at current Wyoming Game and Fish Department strategic plan levels or slightly increased levels. Habitat enhancement and protection would be given priority through restriction of competing activities and specific habitat improvements. Action oriented wildlife planning would include other species (elk, sage grouse, antelope, etc.) as well as federally listed threatened and endangered species and the Colorado River cutthroat trout.

Actions

Habitat management plans would be prepared for the Deadline-Graphite elk herd; the Mesa, Miller Mountain, and Bench Corral big game winter ranges; and sage grouse-antelope habitat. Resource development from competing activities would be constrained through activity planning. Habitat would be enhanced by specific improvements including development of 15 water facilities.

Big game winter range seasonal stipulations presented in Alternative A would be incorporated into all land use authorizations where appropriate. An additional 180,680 acres of mule deer, elk, antelope, and moose winter range would be incorporated for further protection of noncrucial habitats.

High priority would be given to improvement of wildlife habitat through vegetation manipulation. Table 8 presents potential opportunities by vegetation type and animal species seasonal habitat. Under this alternative, 16,000 acres suitable for treatment for wildlife would be considered. Additional acreage may be proposed as suitable areas are identified.

Maximum treatment percentages are designed to provide increased habitat diversity and forage production, while still maintaining adequate acreages and distribution of native shrub communities to provide for existing wildlife species requirements. Table 9 describes restrictions for vegetation manipulation for sagebrush types necessary to provide protection for wildlife.

Monitoring. BLM wildlife habitat monitoring would be species specific, as well as in support of other activities. Big game and sage grouse habitats would be monitored along with federally listed threatened and endangered species and the Colorado River cutthroat trout.

In addition to the monitoring identified in Actions Common, mule deer, elk, antelope, and sage grouse use patterns would be monitored. Habitat trend would be interpreted through survey data collected in cooperation with livestock and watershed monitoring activities. Interdisciplinary selection of key areas and species would ensure that crucial habitats are monitored.

The East Front Aquatic habitat management plan (HMP) would be reassessed and updated to refine enhancement measures for the Colorado River cutthroat trout.

Monitoring would continue to be conducted to determine the status of the fisheries and elk calving habitat areas. Road closures may be initiated to protect fisheries and elk habitat.

Livestock Grazing Management

Objective

The forage resource would be managed to improve ecological range condition and to maintain or increase the amount of available forage for livestock grazing while maintaining or improving the condition in watershed, wildlife, riparian, and wild horse areas to meet objectives of these resources.

Actions

All grazing systems would be designed to provide good plant diversity. Specific objectives would be determined during AMP preparation to provide forage diversity for antelope, mule deer, and sage grouse spring/summer habitat. Grazing systems would be designed to limit forage competition for forbs and other desirable plants particularly in the spring of the year.

All developed and semi-developed recreation sites would be closed to livestock grazing.

Grazing Preference. The overall management objective of this alternative would be to protect or improve vegetative cover and available forage for wild horses, wildlife, and watershed resources. In 20 years, this alternative would increase the present level of 107,907 AUMs by 1,436 AUMs in the "I" category allotments.

Allotment Management Plans. New AMPs would be developed for "I" category allotments in approximately the order of priority shown in Appendix D-5. Existing AMPs would continue to be followed unless monitoring and evaluation dictate that a change in management is necessary. New and existing AMPs would be designed to enhance wildlife habitat and watershed conditions. This may be done at the expense of livestock grazing, where necessary.

Range Improvements. All new range improvements would be designed primarily to benefit wildlife, watershed, wild horses, and recreation resources. Livestock benefits would be secondary. The types and numbers of range improvements to be implemented on "I" category allotments under this alternative are summarized in Appendix D-5. No new livestock waters would be developed in crucial wildlife winter ranges unless it is to accomplish an objective of wildlife. New range improvements would include treatment of approximately 98,552 acres and development of approximately 21 water facilities and construction of 56 miles of fence.

This alternative has a benefit to cost ratio of 1.73, which means that for each dollar invested, a benefit of $1.73 would be produced over 50 years.

Prescribed fire would be the preferred method of vegetation manipulation for the conversion of brush to grassland. Approximately 98,552 acres of vegetation would be suitable for vegetation treatment for livestock management under this alternative in the "I" and "M" allotments (Appendix D-5). Additional AUMs would be primarily allocated to wildlife, wild horses, and watershed; and secondarily to livestock grazing (Table 9).

Livestock waters on crucial elk winter range that would result in increased forage competition would not be developed.

Forage Increases. Long-term increases would be allocated to meet the requirements of wildlife, wild horses, and watershed uses first. Last priority would be to livestock grazing preference. The 12,450 AUMs produced from vegetation manipulation would be used to offset the AUMs lost to oil and gas activity, realty activity, and wild horse activity. Those AUMs set aside for wildlife and watershed would result in a net gain to livestock grazing of 1,436 AUMs in the "I" category allotments.

Combining Allotments. The Gilchrist DLE (2140) and East of DLE (2136) allotments would be combined to facilitate management. The permittees would be consulted prior to combining allotments.

Rangeland Monitoring and Evaluation. Monitoring of the vegetation resource would be conducted at a level sufficient to detect changes in grazing use, trend, and range condition. Adjustments in use would be made accordingly. Use supervision would be more intensive under this alternative. "M" and "C" allotments would be monitored at a low intensity except in areas of critical watershed or crucial wildlife areas. Ecological range site condition mapping would be completed by fiscal year 1987.

Nonallotted Public Lands. The 20,991 acres (2,396 AUMs) of unallotted public lands would not be allocated for livestock grazing and would remain unpermitted.

Conversions in Kind. Conversions in kind would be allowed only if the action would benefit wildlife, watershed, and wild horses. Conversions in kind for sheep use of crucial deer and antelope winter range would not be allowed.

Riparian. Livestock would be managed to improve all riparian areas to a condition class of good or excellent in the long term. In the short term, livestock would be managed to improve poor and fair condition areas by a minimum of one condition class to fair or good respectively. Priority would be given to important Colorado River cutthroat habitat. This objective may necessitate such actions as reducing livestock numbers, fencing riparian areas, herding, or conversion from cattle to sheep, etc.

Elk Winter Range. Adequate forage for wintering elk would be provided (population levels based on 1985 Wyoming Game and Fish Department Strategic Plan) in the Bench Corral, Miller Mountain-Fort Hill, and Graphite elk winter ranges. This would be accomplished through a combination of livestock grazing adjustment and vegetation manipulation.

Wild Horse Management

Objective

Resolve conflicts for water and forage between wild horses and other resource uses.

Actions

Conduct a wild horse roundup in the LaBarge Herd Management Area and remove all wild horses from the LaBarge Herd Management Area. The wild horses would be made available for adoption through the BLM Adopt-A-Horse Program. The wild horse herd area designation would be removed.

The Desert Herd Management Area would be redefined to include the Desert Common Allotment and Reardon Canyon Allotment. A wild horse management plan for the Desert Common Allotment and Reardon Canyon Allotment would be prepared. Forage and adequate water to support 100 horses (1,200 AUMs) would be provided in the Desert Common Allotment and the Reardon Canyon Allotment.

Forest Management

Objective

Consistent with wildlife, watershed, and recreation protection objectives, the forest resource would be managed to maintain the October 1985 levels of forest cover.

Actions

The entire planning area would be managed as a single forest management unit. Approximately 12.1 mmbf would be harvested from 1,865 acres over the next 20 years, assuming an average yield of 6,478 board feet per acre (USDI 1985a). This acreage equates to the conifer acres that currently do not qualify for wildlife hiding cover as a result of past logging or wildfire activities (USDI 1985b). The 20-year harvest acreage is based on an assumption that through natural and artificial reforestation measures, existing logged or burned areas would provide acceptable hiding cover or at least be restocked to the preharvest tree density with 12- to 15-foot tall trees within 20 years. Should the reforestation objective not be achieved, the 20-year harvest level would be commensurately reduced to maintain the October 1985 cover level. Further reductions in Categories 1 and 2 may be necessitated by uncontrolled events such as wildfire or harvesting for development activities. Fluctuations would be allowed in the annual cover reduction level to allow the disposal of forest products in logical and economical units and to maintain a sustained harvest level on a five to ten year average (specific harvest sequences and volume flows would be established in a forest management activity plan). The 12.1 mmbf of programmed timber harvesting would be conducted in the commercial conifer stands within intensive and restricted management categories.

Sales of minor forest products (fuelwood, etc.) would be conducted in addition to the 12.1 mmbf, provided that sales would not result in a decrease in suitable wildlife cover. Sales of minor forest products would be conducted in the commercial conifer and woodland forest types within acreage allocation Categories 1 and 2 and consistent with the levels projected under Actions Common to All Alternatives.

Table 20 shows the forest acreage for both the commercial conifer and the woodland forest types, by management category.

Precommercial thinning would be conducted on approximately 1,200 acres to maintain or improve individual site productivity (Table 11).

In addition to the restrictions and guidelines listed in Actions Common to All Alternatives, the following acreage allocations and operational limitations would be applied, (refer to the Preferred Alternative for a description of the acreage allocation categories).

Acreage Allocation Restrictions. Category 1, Intensive Management, contains approximately 18,732 commercial conifer and 11,528 woodland

TABLE 20

TIMBER ACREAGE ALLOCATIONS FOR ALTERNATIVE C

	Commercial Conifer[1]	Woodland[2]	Total
Category 1[3]	18,732	11,528	30,260
Category 2[4]			
Riparian Buffer	785	436	1,221
Beaver Creek Drainage	1,377	278	1,655
Scab Creek area	184	271	455
Category 3[5]			
Elk Winter Ranges			
(Riley Ridge)	1,028	153	1,181
(Graphite)	2,117	840	2,957
(Fort Hill)	277	145	422
Elk Feedgrounds	783	406	1,189
Category 4[6]			
Rock Creek ACEC (drainage only)	1,322	180	1,502
Total Acreage	**26,605**	**14,237**	**40,842**
Acres Available for Forest Management (Categories 1 & 2)	21,078	12,513	33,591
Acres Not Available for Forest Management (Categories 3 & 4)	5,527	1,724	7,251

[1] Commercial conifer consists of lodgepole pine, Douglas-fir, and the spruce-fir tree species. It also contains nonstocked stands capable of supporting these species or species groups.

[2] Woodland consists of aspen and limber pine.

[3] Lands available for intensive management of forest products.

[4] Lands available for restricted management of forest products.

[5] Lands where forest acreage would be managed to enhance other resources.

[6] Lands not available for management of forest products.

acres that would be available for timber harvesting and thinning activities (refer to Alternatives A and B for a description of applicable restrictions).

Category 2, Restricted Management, would include 3,331 combined commercial conifer and woodland acres that would be available for various forest management activities, such as timber harvesting and thinning but would be constrained by the following restrictions:

> No clearcutting or road construction would be allowed within 1,000 feet of the Beaver Creek drainage. Exceptions would be granted only if assurance could be given that such actions would not adversely affect crucial Colorado River cutthroat trout habitat.
>
> Riparian Buffer - Same as Alternative B.

Category 3, Management to Enhance or Maintain Other Resources, would include 5,779 acres of commercial conifer and woodland that would be subject to the following restrictions and timber harvesting preclusions:

> Elk Winter Ranges - All timber harvesting in the Graphite, Riley Ridge, and Fort Hill-Fontenelle elk winter ranges would be precluded, except when such activities would be deemed necessary to maintain the integrity of the resource being protected or when emergency situations resulting from fire or insect/disease occur.

Elk Feedgrounds (Finnegan, North Piney, and Franz) - Same as the restrictions applying to elk winter ranges.

Category 4, No Forest Management, would preclude all forest harvesting on approximately 1,502 acres (commercial conifer and woodland acres) in the Rock Creek ACEC (refer to restriction description in Alternative B).

Operational Limitations. Operational limitations consist of the following two categories:

1. Slope Restriction - Same as Alternative B.
2. Harvest Unit Size - Same as Alternative B.

Visual Resource Management (VRM)

Objective

The visual management classifications would be modified to accommodate protection of crucial resources and would be similar to Alternative A. The boundaries as shown on Map 18 would be redefined in more detail at a future date, after a detailed inventory and evaluation is completed. The VRM class would be upgraded in some areas to further protect visual values.

Actions

The VRM classification acreages and boundaries would become as shown on Table 13 and Map 18.

A project that would not be acceptable under the established VRM classifications would not be allowed.

A program would be initiated in the resource area to improve the visual quality of the oil field areas by working with the companies to reduce the visual impact of existing facilities by such methods as painting, screening, and reclamation.

Off-Road Vehicle (ORV) Management

Objective

Off-road vehicles would be managed to provide protection to other resource values. The current ORV closures and limitations would remain. The remainder of the resource area would be designated as either "open," "closed," or "limited to ORV uses." Areas with critical resource values would be closed to ORV use or have ORV use limited during conflicting use periods. The majority of the area would be designated as having travel limited to existing roads and trails except for over-the-snow vehicles (Table 21). Areas with additional limitations that would be implemented are described in the actions.

Actions (refer to Map 19)

In addition to current ORV restrictions, the following seasonal closures would be implemented to reduce conflicts with wildlife during critical periods:

Total Area Closures to All ORV Use. The natural elk winter range in the Bench Corral and the Riley Ridge-Cretaceous areas would be closed to all ORV use from November 15 through April 30.

The Holden Hill area (approximately 653 acres) would be closed to all ORV use.

ORV Use Including Oversnow Vehicles Limited to Designated Roads. The Deer Hills, Oil Field, Milleson Draw, Bray Draw, Mesa, and Sand Springs deer and antelope winter ranges would be closed to ORV use including oversnow vehicles from November 15 through April 30.

The Mount Airy watershed area would be designated as closed from April 1 through May 15.

Recreation Management

Objective

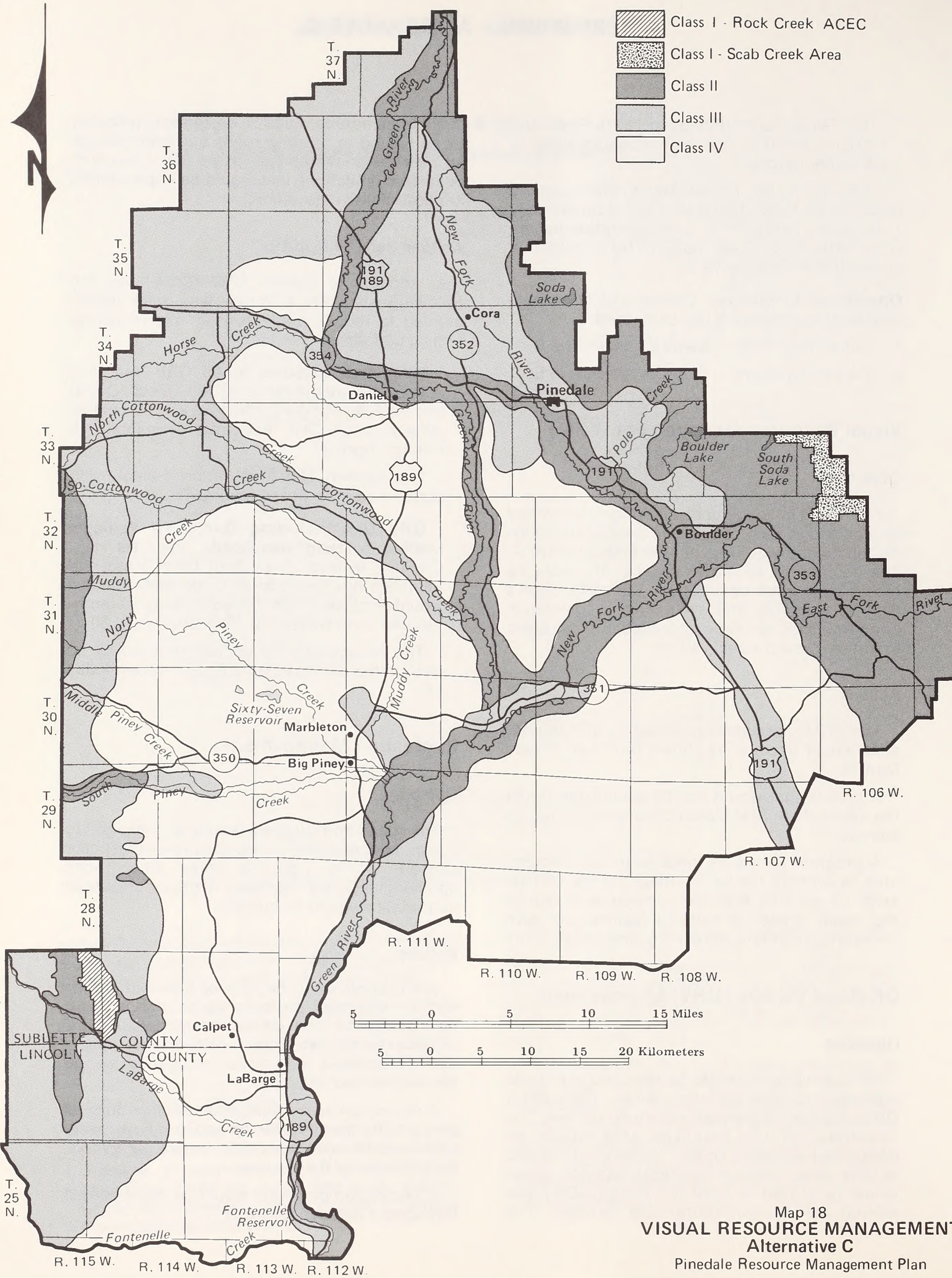
The recreation program would be managed to accommodate existing uses and prevent resource degradation in high use areas. Only those additional facilities necessary to prevent resource degradation would be installed.

Actions

Withdrawals would be pursued from exploration and development from locatable minerals on developed and semi-developed recreation sites (approximately 585 acres). Withdrawals would also be pursued for any future developed and semi-developed sites.

A recreation area management plan would be prepared for the upper Green and New Fork Rivers to provide for adequate public access and proper development of these areas.

A 14-day camping limit would be implemented throughout the planning area.



Map 18
VISUAL RESOURCE MANAGEMEN
Alternative C
Pinedale Resource Management Plan

TABLE 21

OFF-ROAD VEHICLE DESIGNATIONS (Alternative C)

Name of Area	Type of Designation	Season/ Dates of Restriction	Acres	Resource Being Protected
Scab Creek Area	Closed	year round	7,636	Wilderness
Rock Creek ACEC	Closed	year round	4,200	Wildlife, Watershed
Holden Hill	Closed	year round	653	Cultural
Bench Corral Feedground	Limited	11/15-4/30	33,120	Wildlife
Fall Creek Feedground	Limited	11/15-4/30	714	Wildlife
Finnigan Feedground	Limited	11/15-4/30	2,698	Wildlife
Franz Feedground	Limited	11/15/-4/30	3,170	Wildlife
North Piney Feedground	Limited	11/15-4/30	2,519	Wildlife
Scab Creek Feedground	Limited	11/15-4/30	1,870	Wildlife
Miller Mountain	Limited	11/15-4/30	118,543	Wildlife
Deer and Antelope Winter Range	Limited	11/15-4/30	223,158	Wildlife
Mount Airy	Limited	4/1-5/15	5,424	Watershed
Remainder	Limited to Existing Roads and Trails	year round	527,295	All
Total Acres			**931,000**	

Cultural Resource Management

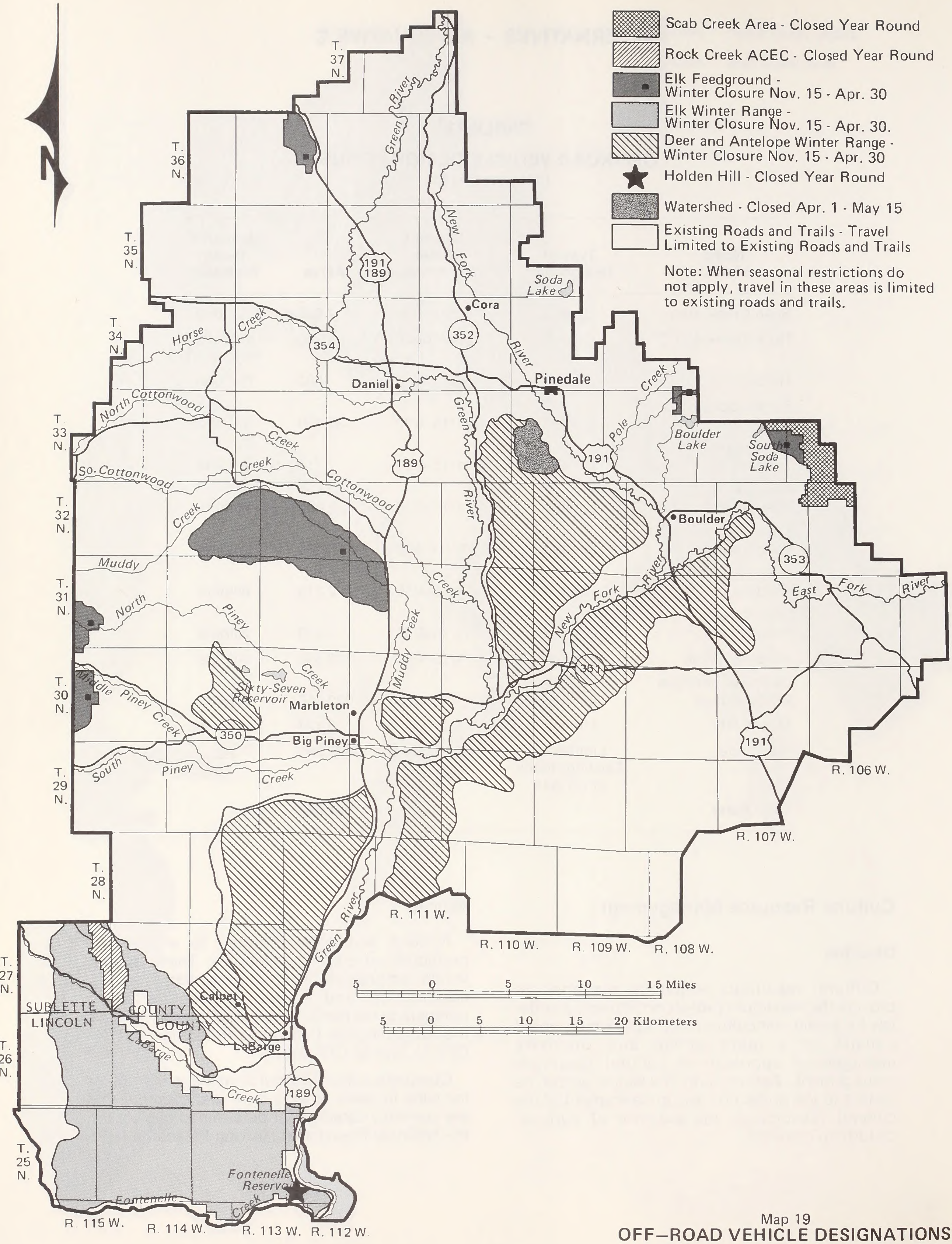
Objective

Cultural resources would be managed to provide the maximum protection allowable under law for significant cultural resources which would consist of a more active and intensive management approach to cultural resources management. Actions and decisions would be geared to the protection and enhancement of the cultural resource at the expense of surface-disturbing activities.

Actions

Actions would be initiated to ensure the protection of cultural resources. These actions would emphasize historic preservation goals, compliance, and mitigation responsibilities pursuant to the National Historic Preservation Act, the Archeological Resources Protection Act (43 CFR 7), and 36 CFR 800.

Complete cultural resource management plans for sites in need of long-term management that are currently listed on, or determined eligible for, the National Register of Historic Places (NRHP).



Map 19

OFF–ROAD VEHICLE DESIGNATIONS

Alternative C

Pinedale Resource Management Plan

This would include sites 48LN300, 48SU350, and 48SU301. Additional cultural resource management plans would be prepared and implemented on newly discovered significant cultural sites, stressing the salvage and protection of archeological components presently deteriorating. Such sites would include the Overlook Rock Shelter (80 acres), the Aspen Stone Circle Site (100 acres), the Cora Butte alignment (unknown acres), the Willow Lake Site (unknown acres), and the Boulder Lake Site (approximately 200 acres). Additional cultural resource management plans would be prepared as new sites needing special management are identified.

Significant cultural resource sites would be nominated to the National Register of Historic Places. Initially, nomination would be sought for Boulder Lake, Sand Springs, Alkali Draw, and the Green River Medicine Wheel.

Lands actions such as exchanges in support of cultural resource management objectives would be pursued, i.e., pursue acquisition of portions of Historic Trails, other National Register sites eligible at the national or state level.

Withdrawals would be pursued from exploration and development of locatable minerals for significant cultural sites (currently approximately 1,120 acres).

The Oregon/Mormon Pioneer National Historic Trails Management Plan would be implemented. Initially, priority would be given to completion of the trail marking and signing program. Interpretive sites would be developed at strategic locales such as Sand Springs, the trail crossings of the Green and New Fork Rivers, and up South Piney Creek. An interpretive plan for the Lander Road would be developed and implemented.

Cooperative agreements would be pursued with local historical and archeological societies and other interested parties for attaining mutual historic preservation goals.

Lands Management

Objective

The right to occupy or acquire the public lands would be authorized under the appropriate realty actions to implement a multiple use management concept within the objectives and guidance provided under all resources described in this alternative. Private and state inholdings would be considered for acquisition through exchange when needed to improve the management situations for other activities described in this alternative. Exchanges would be considered when other management options such as cooperative agreements are not available.

Actions

Permits and leases would be issued for activities that would benefit or not adversely affect cultural, recreation, wildlife, and watershed values and the conditions/stipulations of the permit would limit development of the public lands.

Classification and Multiple Use Act retention and disposal classifications (orders W-19140, W-25810, and W-12668) in Sublette and Lincoln Counties would be terminated. Discretionary management under the provisions of FLPMA, in areas formerly covered by these orders, would be consistent with the provisions of this alternative.

Land disposal (e.g., exchange or sale) would occur where the public interest would best be served by these types of realty actions. Identified parcels of isolated public lands, parcels identified for community and industrial expansion, or areas that may contain parcels that meet the criteria contained in Section 203 of FLPMA and the objectives outlined in this plan, would be made available for disposal after a site-specific analysis and determining compliance with FLPMA. The parcels identified, (Table 15, Appendix G-2) also meet the criteria stated in Appendix G-1. Disposal of all identified parcels would not be expected and other qualifying parcels may be identified in the future. Approximately 48 parcels, encompassing approximately 5,300 acres, have been identified for disposal through sale or exchange (Map 11).

In addition to the 48 parcels, several parcels have been identified as available for disposal with exchange being the preferred method. Parcels totaling approximately 8,000 acres have been identified as suitable for exchange. Other exchanges would be considered for other lands needed to support the recommendations of other activities in this alternative. Exchange is the preferred method of disposal provided such exchanges are needed to provide for the efficient BLM management of existing public lands or resources in the Pinedale Resource Area, and are consistent with the objectives of this alternative.

Desert Land Entry petition applications would be disqualified when the public lands are identified within:

1. Lands within the capability classes that the Department of Agriculture, Agricultural

Stabilization and Conservation Service, is seeking to remove from cultivation under the Conservation Reserve Program, would not be considered suitable for agricultural development.

2. Lands that the Department of Agriculture, Soil Conservation Service show as being "non-irrigable."
3. Lands identified as sensitive, unique, or necessary to fulfill the management objectives of this alternative.
4. Agricultural land entry petition applications would also be disqualified when the public lands would be utilized for the growth of government price-supported crops, or when use of water supplies would deplete an underground water supply beyond its annual recharge ability, thus threatening existing water users.

Lands that contain or lie within active stock driveways (Map 12) that are continuing to serve their designated purpose, shall continue to be segregated from all forms of disposal under the public land laws. Mineral locations on stock driveways would be handled under 43 CFR 3815. All other applications for disposal would be rejected by the authorized officer. Applications for the exchange of such lands, which show that they are filed for the improvement of a particular stock driveway and applications to lease or use such lands under the public land laws would receive consideration if they are compatible with and do not interfere with the stock driveway.

The stock driveway withdrawals that are not serving their designated purpose would be revoked because they do not contain justification for segregating the public lands.

Lands actions would be pursued to enhance and maintain key wildlife habitats. State and private land exchanges to acquire crucial or key habitats in certain federal management situations (Rock Creek ACEC, New Fork Potholes, key riparian areas) would be pursued where feasible.

Authorized rights-of-way would carry conditions and stipulations that would ensure little or no adverse impact on the resources identified for protection in the lands objective. The seasonal stipulations described under Minerals Management and other activities in this alternative would apply to lands-related surface-disturbing actions.

Linear rights-of-way such as pipelines, powerlines, roads, and cables, would usually not be allowed within the areas identified as having no surface occupancy and the no lease areas. Some rights-of-way may be allowed following a case-by-case analysis if such rights-of-way would not create surface disturbance, would have high potential for reclamation, would create short-term impacts, or would be compatible with resources requiring protection. Approximately 1,685 acres have been identified as avoidance areas.

Areas requiring mitigations and restrictions are considered limited areas for surface-disturbing activities such as rights-of-way. These restrictions include, but are not limited to, seasonal restrictions for wildlife and watershed. They also include areas which require engineered slope designs and measures necessary to prevent degradation of cultural, historical, and recreational sites. Approximately 585,000 acres have been identified in this category.

Areas that require no mitigations or restrictions would be considered open for rights-of-way and surface-disturbing activities.

The BLM would pursue withdrawals from exploration and development of locatable minerals where necessary in support of other resource management objectives and actions. For example, the Rock Creek drainage (approximately 4,200 acres), developed and semi-developed recreation sites (approximately 585 acres) and significant cultural sites (approximately 1,100 acres) would require a withdrawal action to close and protect them from exploration and development of locatable minerals. Withdrawals would be also pursued for any future identified developed and semi-developed recreation sites or significant cultural sites.

Area of Critical Environmental Concern (ACEC) Management

Rock Creek ACEC

Objective. The objective for managing the designated ACEC would include protection of the Rock Creek drainage to assure quality aquatic habitat for the sensitive Colorado River cutthroat trout. Objectives for management would also expand to include constraints on competing activities (oil and gas development, livestock grazing, timber harvest, rights-of-way) to provide undisturbed habitat for these wintering elk.

Actions. The boundaries of the currently designated Rock Creek ACEC would be expanded to include approximately 10,848 additional acres which encompass a major portion of the crucial winter range for elk on Deadline-Ridge and Graphite Hollow area (Map 13).

The currently designated 5,264 acre ACEC would be closed to mineral leasing. Mineral leases would be withheld on the additional acres, (approximately 10,848 acres) pending preparation of a habitat management plan to identify compatible development opportunities. Data from Wyoming Game and Fish Department monitoring studies and further information on the mineral resources would provide this information.

Livestock AMP development would consider elk habitat requirements and restrictions on timber harvest would generally allow no harvest in the ACEC.

The current Rock Creek ACEC would be managed as a Class I VRM area. The expanded area would be managed under a Class II VRM rating. Within the currently designated 5,264-acre ACEC, 4,200 acres would remain closed to ORV use. The additional 10,848 acres and 1,064 acres of the current ACEC would be limited with seasonal restrictions from November 15 through April 30 and use would also be limited to existing roads and trails.

Lands actions would be managed to protect and enhance the elk and trout habitat. Land exchange opportunities would be explored to acquire key habitat from state and private ownership. All development and management actions would be designed to maintain and enhance the integrity of the crucial elk winter range as well as Colorado River cutthroat trout habitat. Approximately 700 acres would be recommended for acquisition for the proposed expanded Rock Creek ACEC. A withdrawal from exploration and development of locatable minerals would be pursued for the Rock Creek drainage (approximately 4,200 acres).

Beaver Creek ACEC

Objective. The Beaver Creek ACEC would be managed to give full consideration to maintaining Colorado River cutthroat trout and elk calving habitat. This area is presently leased for oil and gas, is partially developed, and has a high potential for future development. The area is also open for other mineral activities although the potential for development of other minerals is low. Objectives and actions would be established to limit impacts as much as possible. The Colorado River cutthroat trout is currently listed as a sensitive species by the Wyoming Game and Fish Department.

Actions. The Beaver Creek drainage (approximately 5,400 acres) would be recommended for ACEC designation under this alternative (Map 13).

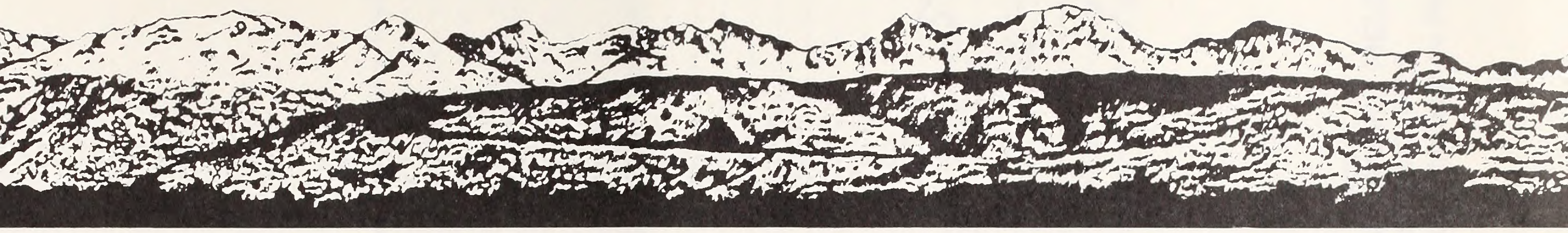
Approximately 22 miles of stream and 5,408 acres would be managed for fisheries and elk habitat.

A detailed management plan would be prepared and would consider the following types of actions: limiting livestock grazing to maintain good riparian condition on the Upper Beaver Creek drainages and to improve riparian condition on approximately one mile of South Beaver Creek; managing the area as a Class III VRM area; confining ORVs to existing roads and trails, and allowing no surface disturbance on areas with slopes of 25 percent or greater.

Management prescriptions could also include identifying transportation routes that would reduce the potential for spills of toxic materials, and not allowing surface disturbance or clearcutting within 1,000 feet of the streams. Partial cutting would be allowed provided no adverse impacts would occur to the Colorado River cutthroat trout.

Roads and rights-of-way would follow existing alignments unless design criteria would preclude adverse impacts to the trout and elk calving habitat; and stream crossings would be limited to lower elevations and gentler slopes. Use of equipment and vehicles, including geophysical activity, must be consistent with the objectives of the ACEC.

CHAPTER 3



AFFECTED ENVIRONMENT

INTRODUCTION

This chapter contains a description of the existing physical, biological, and socioeconomic characteristics of the planning area that would be affected by the alternatives described in Chapter 2. This description serves as a baseline for analyzing and determining the effects on resources from the various alternatives. Much of the information presented in this chapter has been summarized from the Management Situation Analysis (USDI 1985b), which is available for review in the Pinedale Resource Area.

CLIMATE AND AIR QUALITY

The climate of the planning area is generally classified as dry mid-continental with mostly dry and sunny days. The weather is of Pacific origin with varying climatic settings influenced by elevational effects. Higher elevations usually receive more rainfall than lower elevations. Since the planning area is bounded by mountain ranges on three sides, montane ecosystems are found north, east, and west from the center of the planning area.

Precipitation and temperature are the two most important climatic parameters for vegetation growth in the area. Precipitation annual means range from 8.52 to 22.9 inches. Approximately 30 percent of the annual rainfall falls during the period of April through June. Winters and early springs can bring gusty winds with accompanying ground blizzards. Temperatures can be harsh both in the winter and summer. Maximum temperatures have been known to reach 103° F. at maximum and -63° F. minimum. The relatively short growing season and low precipitation have helped foster a productive livestock grazing industry.

The ecological setting of the planning area is also influenced by other climatic factors. Pan evaporation (a measure of moisture uptake by the surrounding atmosphere) has means of 9.11 inches in May to 10.92 inches in August and 7.62 inches in September (measured at Green River, Wyoming). The average yearly relative humidity is about 55 percent. Winds are generally strong and from the west or southwest. Figure 3 presents a contour map of the general southwestern Wyoming area including the planning area and computed wind velocity vectors for wind speed and direction for the most common atmospheric stability (buoyancy of the atmosphere usually divided into six classes by air pollution meteorologists) and wind speed. Figure 4 presents this same type of information for the most common wind speed under the F, or worst stability class. Long-term wind patterns, combined with the mixing ability of the atmosphere, explain the dispersion of released air pollutants in the planning area. This information also explains the occurrence of inversion events; a common occurrence in Pinedale and other mountain towns during the winter months which can cause the entrapment of smoke released from residential chimneys.

Calculated dispersion potentials for the resource area and the surrounding region are shown on Figure 5. This figure illustrates areas in which pollutant dispersion would be either good or poor. Figure 5 was produced using stable atmospheric conditions (worst case) and low wind speeds to depict realistic but worst case conditions. As can be seen from this map, dispersion of released pollutants would generally be expected to be good.

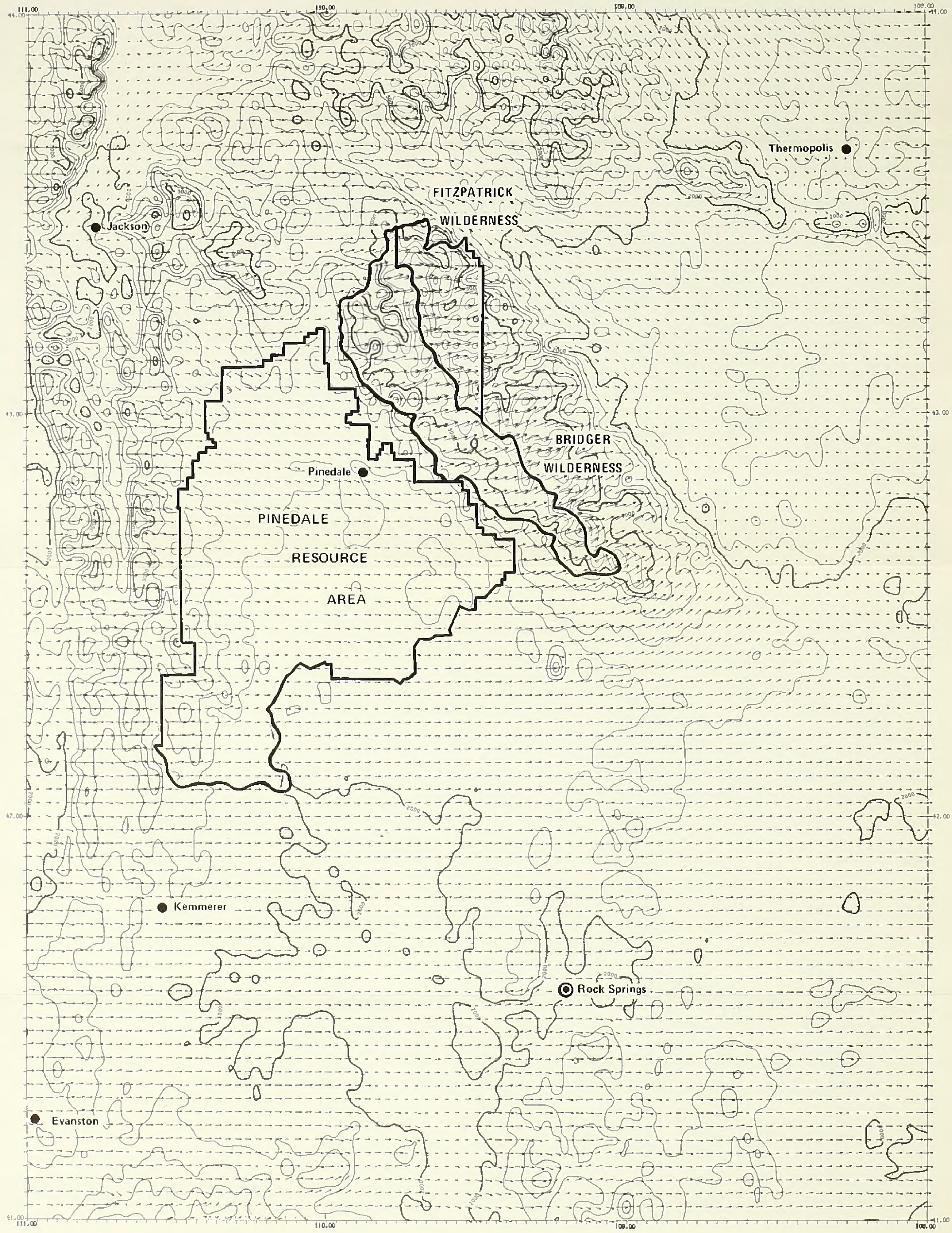
Air quality in the resource area is generally excellent with background ambient levels of pollutants (Table 22) well below established standards. Visibility, an important indicator of

TABLE 22

ESTIMATES OF REPRESENTATIVE BACKGROUND (EXISTING) POLLUTANT LEVELS IN THE PINEDALE RESOURCE AREA[1] (micrograms/cubic meter)

Pollutant	Background Averaging Time	Concentration
SO_2	3-Hour	70
	24-Hour	15
	Annual	3
NO_2	Annual	9
TSP	24-Hour	60
	Annual	30
CO	1-Hour	3,500
	8-Hour	1,500

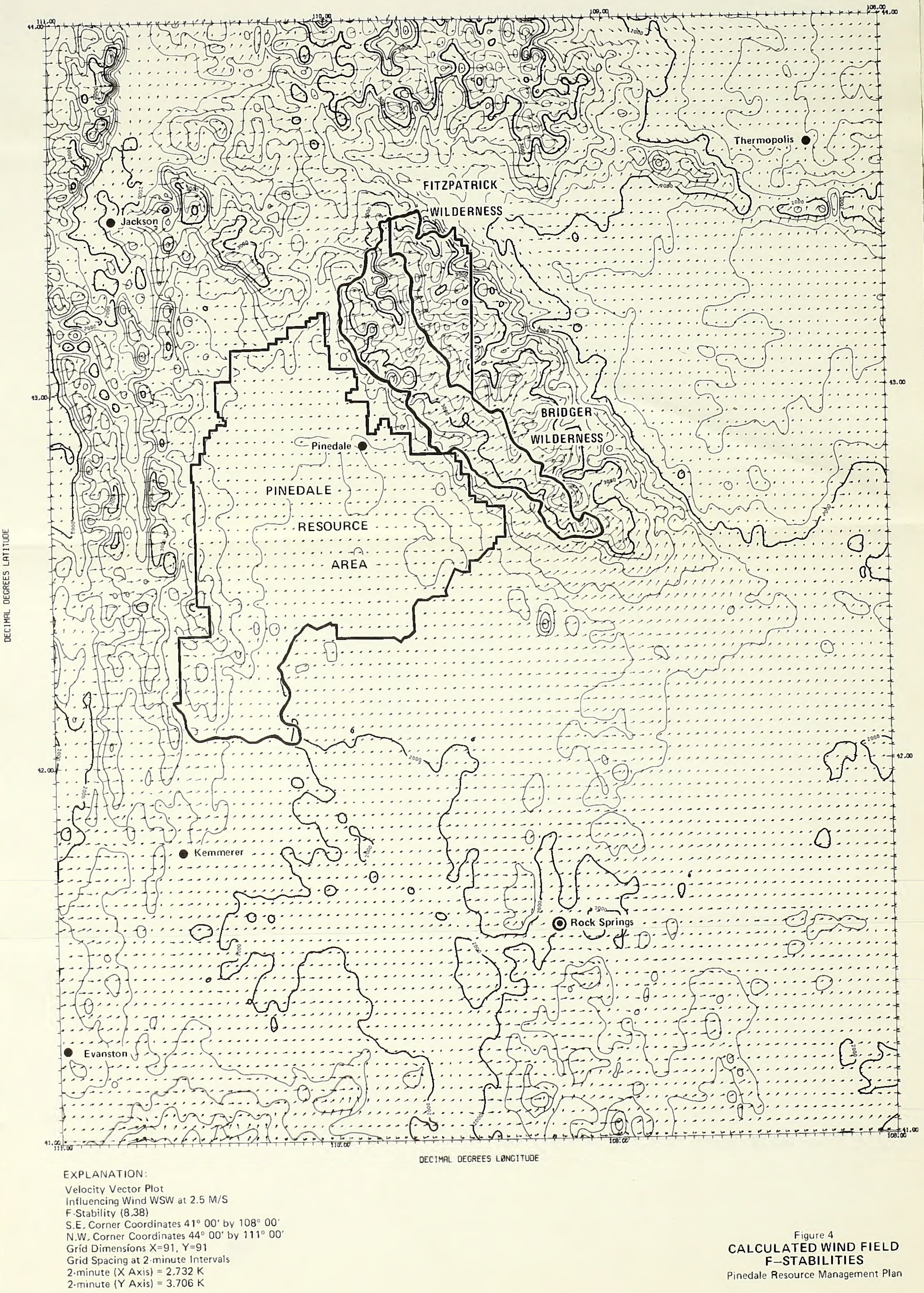
[1] Background pollutant levels estimated from available data sources. Sources include WDEQ monitors at Kemmerer, Grover, and Boulder; Amoco monitors at Ryckman Creek; Utah Power and Light monitors at the Naughton Power Plan; and monitors operated by Kemmerer Coal Company.



EXPLANATION:

Velocity Vector Plot
Influencing Wind W at 7 M/S
All Stabilities (8.15)
S.E. Corner Coordinates 41° 00′ by 108° 00′
N.W. Corner Coordinates 44° 00′ by 111° 00′
Grid Dimensions X=91, Y=91
Grid Spacing at 2-minute Intervals
2-minute (X Axis) = 2.732 K
2-minute (Y Axis) = 3.706 K

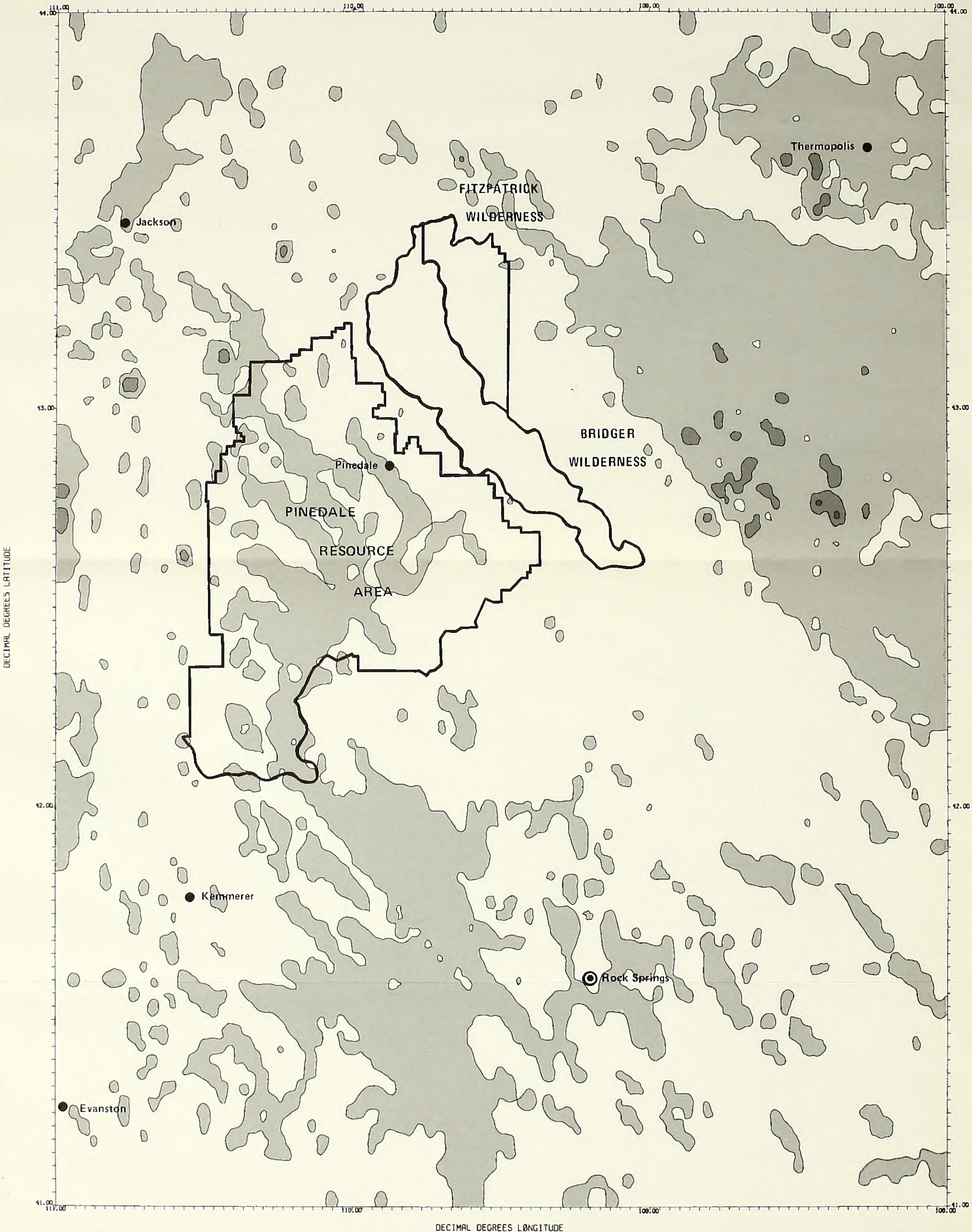
Figure 3
CALCULATED WIND FIELD
ALL STABILITIES
Pinedale Resource Management Plan



EXPLANATION:

Velocity Vector Plot
Influencing Wind WSW at 2.5 M/S
F-Stability (8.38)
S.E. Corner Coordinates 41° 00' by 108° 00'
N.W. Corner Coordinates 44° 00' by 111° 00'
Grid Dimensions X=91, Y=91
Grid Spacing at 2-minute Intervals
2-minute (X Axis) = 2.732 K
2-minute (Y Axis) = 3.706 K

Figure 4
CALCULATED WIND FIELD
F–STABILITIES
Pinedale Resource Management Plan



EXPLANATION:

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Grid Dimensions X=91, Y=91
Grid Spacing at 2-minute Intervals
2-minute (X Axis) = 2.732 K
2-minute (Y Axis) = 3.706 K

Pollution Potential

☐	Low 0–2
▨	Medium 2–4
▨	High 4–6
■	Very High 6+

Figure 5
POLLUTION POTENTIAL
Pinedale Resource Management Plan

atmospheric contamination, is often at 70 miles or better in the resource area. Class I areas are those which have been set aside for much more stringent air quality and air quality related value protection and those areas near the Pinedale Resource Area are shown on Figures 3, 4, and 5. Areas of the resource area that are Class II are under the provisions of the Clean Air Act and the Wyoming State Implementation Plan. Class II areas are those which have been designated for moderate industrial development with the addition of specified amounts of pollutants up to a moderate level over baseline (Table 23).

Major sources of air pollution for southwestern Wyoming are listed in Table 24. Emissions may result in acid rain (atmospheric deposition) in the U.S. Forest Service Class I wilderness areas to the east of the planning area. Major new sources of air pollution in Wyoming must not cause ambient concentrations of sulfur dioxide or total suspended particulate to rise beyond the level of of the appropriate Class I or II prevention of significant deterioration increment. Also, no new source may be allowed to cause ambient pollutant levels to exceed the Wyoming ambient air quality standards. At present, there are no areas of nonattainment of ambient standards or that exceed the PSD increments in the planning area.

TABLE 23

STATE AND FEDERAL AIR QUALITY STANDARDS
(micrograms/cubic meter)

		Ambient			Increment		
		Federal			PSD Federal & Wyoming		
Pollutant	Averaging Time	Primary	Secondary	Wyoming State	Class I	Class II	Class III
Sulfur Dioxide (SO_2)	Annual (Arith.)	80	—	60	2	20	40
	24 hour	365	—	260	5	91	182
	3 hour	—	1,300	1,300	25	512	700
Total suspended Particulates (TSP)	Annual (Geo. Mean)	75	60	60	5	19	37
	24 hour	260	150	150	10	37	75
Carbon Monoxide (CO)	8 hour	10,000	10,000	10,000	—	—	—
	1 hour	40,000	40,000	40,000	—	—	—
Nonmethane Hydrocarbons	3 hour (0600-0900)	—	—	160	—	—	—
Hydrogen Fluoride (HF)	24 hour	—	0.3	—	—	—	—
Hydrogen Sulfide (H_2S)	long term[1]	—	—	70	—	—	—
	short term[2]	—	—	40	—	—	—
Lead (Pb)	Quarterly	1.5	1.5	—	—	—	—
Nitrogen Dioxide (NO_2)	Annual (Arith.)	100	100	100	—	—	—
Oxidents (Ozone)[2]	1 hour	235	235	160	—	—	—

Sources: National Primary and Secondary Ambient Air Quality Standards (40 CFR 50 et seq, as amended January 5, 1983). Requirements for Preparation, Adoption and Submittal of Implementation Plans (40 CFR 51.24, as amended September 3, 1982). Approval and Promulgation of Implementation Plans (40 CFR 52.21, as amended June 25, 1982). Code of Colorado Regulations (Volume 5, Part 14 as amended May 27, 1980). Wyoming Rules and Regulations of the Department of Environmental Quality, Air Quality Division (Chapter 1 as amended January 25, 1979).

[1] The Wyoming long-term hydrogen sulfide half-hour standard is not to be exceeded more than twice per calendar year.

[2] Short-term standards (those other than Annual and Quarterly) are not to be exceeded more than once each year except hydrogen fluoride, hydrogen sulfide, and the federal ozone standards. Under regulations, the "expected number of days" with ozone levels above the standard are not to be exceeded more than once per calendar year. The Wyoming short-term hydrogen sulfide half-hour standard is not be be exceeded twice per five day period.

TABLE 24

EMISSIONS FOR EXISTING SOURCES IN THE STUDY AREA (pounds/hour)

Source	Emissions		
	SO_2	NO_x	TSP
Naughton Power Plant (Allowable)[1]	5,894	5,018	1,517
Opal Gasoline Plant	0	150	0
Opal Compressor Station	0	16	0
FMC Coking Plant	NA	65	139
Kemmerer Coal (Allowable)[1]	0	0	269
Dehydrators	NA	65	NA
FMC Trona Plant	806	820	330
Texas Gulf Trona Plant	203	381	240
Stauffer Trona Plant	20	153	175
Tenneco Trona Plant	226	791	NA
Whitney Canyon Gas Treatment Plant[2]	3,117	0	0
Carter Creek Gas Treatment Plant[2]	34	0	0
Amoco Production Company	NA	NA	NA
Southland Jones	NA	NA	NA
Wasatch Forest Products	0.23	6	19
Kamus Forest Products	NA	NA	NA
FMC Skull Point Mine	NA	NA	NA

Source: Riley Ridge Natural Gas Poject Air Resources Technical Report, BLM I983.

NA - No data available

[1] Allowable emissions refer to the maximum emissions rate permitted by regulation. Actual plant emissions are generally below these levels.

[2] These sources have only recently begun operation. Their emissions, therefore, have not contributed to historic air quality measurements.

Atmospheric deposition (acid rain) measurement data for the planning area are reported from the Pinedale, Wyoming National Atmospheric Deposition Program (NADP) site (Table 25). This site is part of the NADP/National Trends Network, a nationwide program to assess deposition trends across the continental United States. Recently, two new sites for deposition monitoring have been established at Green River Lakes north of Pinedale and South Pass City, to the south of Pinedale. Data from these new sites is not yet available, until it is, the data from the Pinedale site can be considered as representative of the planning area.

Throughout the Overthrust Belt geologic area of western Wyoming natural gas wells with high concentrations of hydrogen sulfide (H_2S) have been encountered. Natural gas contaminated with poisonous H_2S can cause a significant safety risk if released during an emergency event (i.e., well blowout or pipeline rupture). Sources of H_2S have generally been encountered along the west boundary of the planning area. Map 20 indicates the existing activity in this area, of which a small percent involves H_2S. A more detailed map is on file in the Pinedale Resource Area office. Where risks to public health could be high, BLM will require stipulations to ensure public health and welfare.

TABLE 25

RAINFALL pH DATA FROM PINEDALE, WYOMING, NATIONAL ATMOSPHERIC DEPOSITION PROGRAM (NADP) SITE

Month/Year	Number of Observations	Mean pH
1982		
August	5	5.28
September	3	5.53
October	3	5.99
November	4	5.51
December	1	5.79
1983		
January	1	6.08
February	4	5.99
March	5	5.72
April	4	6.09
May	5	5.45
June	4	4.64
July	3	5.01
August	4	5.24
Total/Mean	**49**	**5.56**

Source: NADP Central Analytical Laboratory - Illinois State Water Survey

Note: When rainfall pH is measured to be below 5.60, many scientists have held the opinion that this level of rainfall is more acidic than normal. Experience with collected rainfall samples has shown that rain can only be truly called acidic, in comparison to a long-term average pH (approximately 10 years) for collected samples at a specific site. Although pH of rainfall is below pH 5.60 at Pinedale (by measurement), it may not truly be indicative of acid rain until samples can be compared against a longer data record.

GEOLOGY AND MINERAL RESOURCES

The planning area lies mainly within the northern part of the Green River Basin, a large structural and topographic depression drained by the southward flowing Green River and its tributaries. The Basin is bounded to the northeast by the Wind River uplift, a large foreland structure comprised of Precambrian igneous and metamorphic rocks which have been thrust to the southwest over Basin sediments. To the west is the Wyoming portion of the Overthrust Belt, comprised of several thrust sheets which moved to the east over the Basin sediments. Within these thrust sheets many structures developed which are highly prospective as hydrocarbon reservoirs.

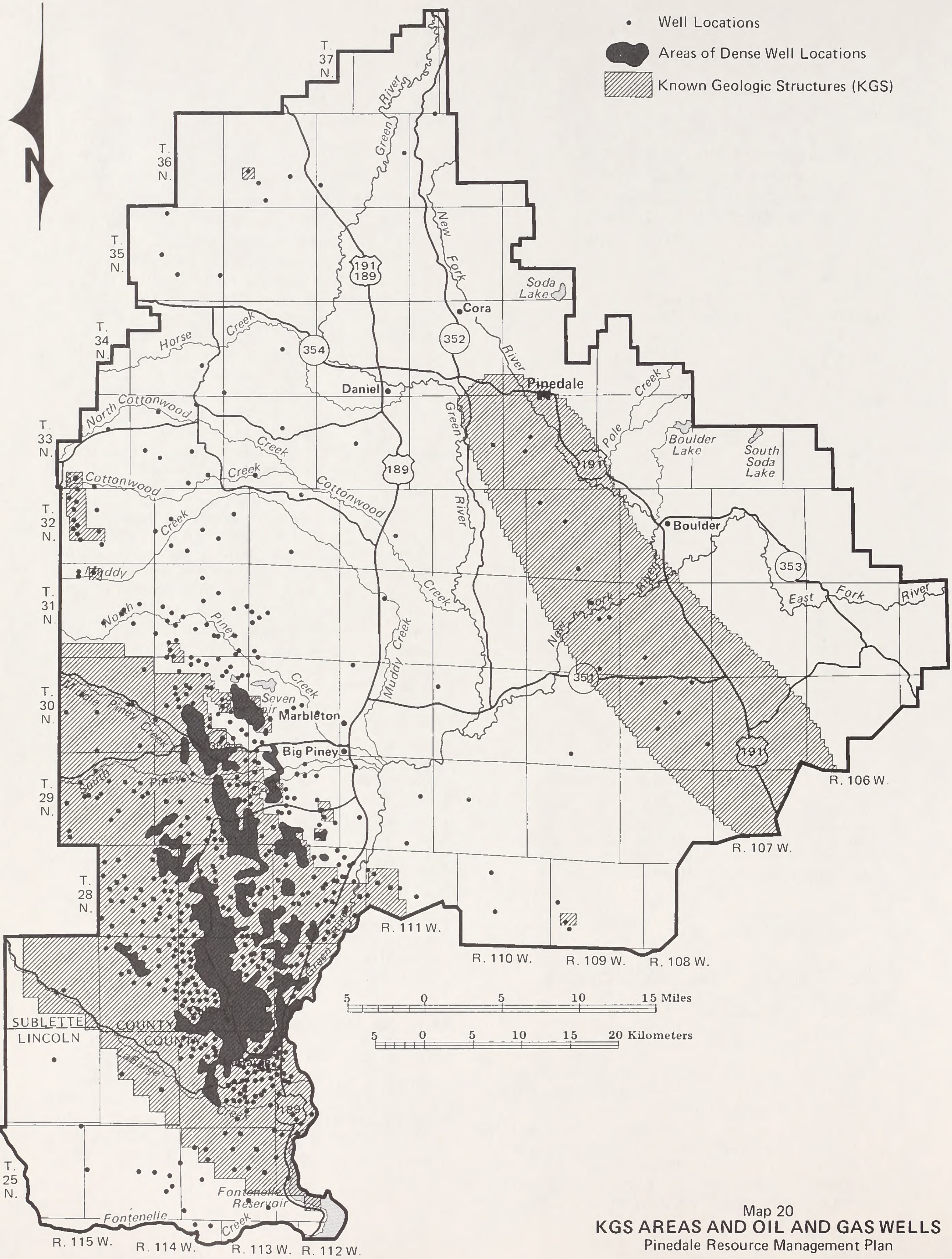
The tectonic disturbances which created the major features described above were associated mainly with the Laramide orogeny. These disturbances occurred from late Mesozoic through early Tertiary time and also resulted in several important subsurface structural features. These include the Moxa Arch, a north-south trending structural arch lying just east of the overthrust belt leading edge, and the Pinedale anticline, a doubly plunging fold which parallels the Wind River uplift. Both the Moxa Arch and the Pinedale anticline contain large hydrocarbon reserves. Figure 6 illustrates basic hydrocarbon traps.

In early Tertiary time the subsiding Green River Basin was gradually filled with fluvial and lacustrine sediments. Detrital materials were eroded from the surrounding mountains (Wind Rivers and Overthrust area) and deposited in the basin by numerous streams. Beginning in the Eocene, increasing volcanic activity in the Yellowstone-Absaroka area provided an additional source of sediments to the basin. By Oligocene time the Green River Basin was essentially full of sediment. The late Tertiary marked a period of large-scale regional uplift and erosion which exhumed the surrounding mountains and removed much sediment from the basin. During the Pleistocene, alpine glaciation reshaped the surrounding mountains and resulted in numerous gravel deposits being shed into the basin in the form of glacial moraines and outwash.

A stratigraphic column is included which depicts the rock sequence found in the northern Green River Basin. It includes the names and ages of the rocks that have been deposited here since Precambrian time (Figure 7) and represents a sedimentary column nearly 30,000 feet thick.

Mineral Resources

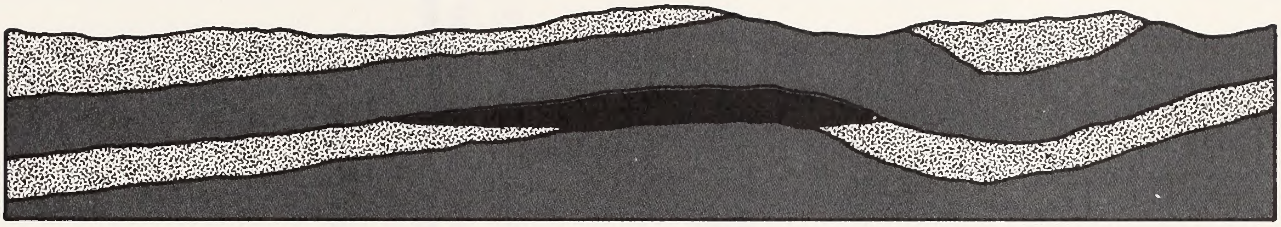
Oil and gas exploration and development (Appendix C-3) has been occurring in the area since the 1920s (Maps 20 and 2). Interest increased in the 1970s and early 1980s with over 2,000 miles of seismic lines run between 1979 and 1985 (Table 26).



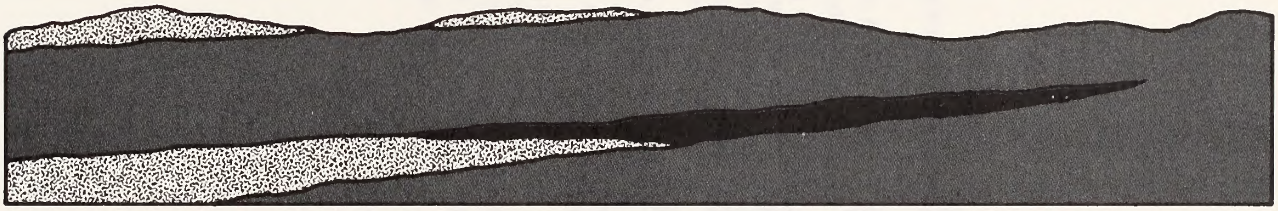
Map 20

KGS AREAS AND OIL AND GAS WELLS

Pinedale Resource Management Plan



Anticlinal Fold Trap



Stratigraphic Trap

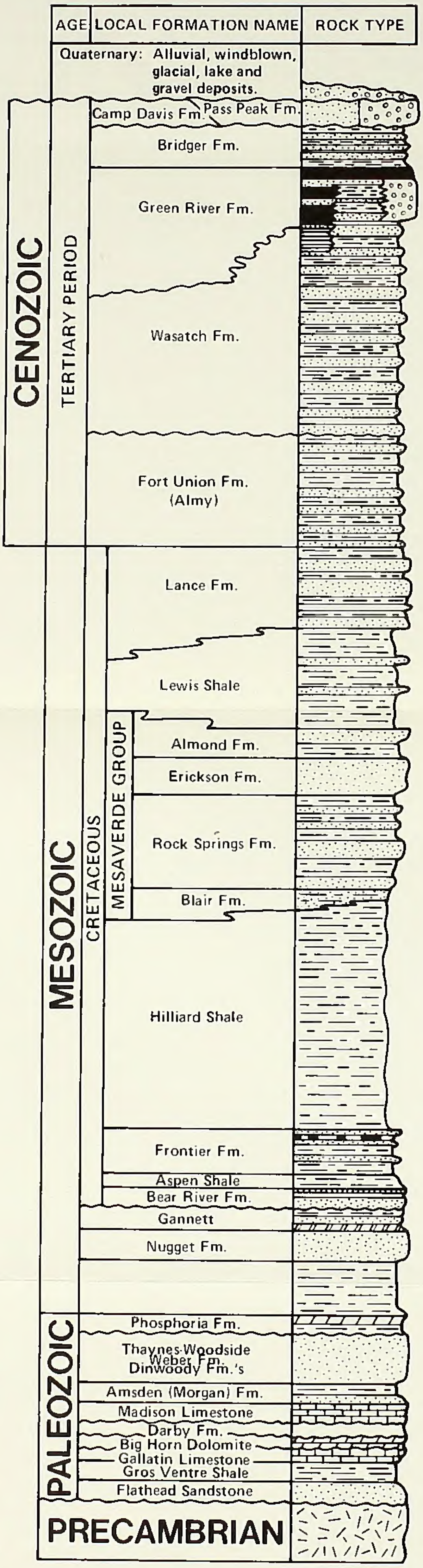
Impermeable Shale ▨

Oil ■

Permeable Sandstone ░

SOURCE: Blackstone, 1971

Figure 6
BASIC HYDROCARBON TRAPS



AGE	LOCAL FORMATION NAME	GENERAL DESCRIPTION
Quaternary:	Alluvial, windblown, glacial, lake and gravel deposits.	
CENOZOIC TERTIARY PERIOD	Camp Davis Fm. Pass Peak Fm.	Brown buff, cross-bedded eolian sandstone, interbedded gravels, cobbles and boulders of sandstone, quartzite, and crystalline schists. (maximum deposition, etc.)
	Bridger Fm.	Olive and drab banded sandstone and shale, fluvial and lacustrine origin.
	Green River Fm.	Thinly laminated chalky shale, buff-brown sandstone, soft marly shale.
	Wasatch Fm.	Red and gray conglomerate; shale and sandstone, coal bearing.
	Fort Union Fm. (Almy)	Gray carbonaceous shale and sandstone with ferruginous concretions, coal bearing.
MESOZOIC CRETACEOUS	Lance Fm.	Thick to thin bedded gray to buff sandstone with gray to brownish shale.
		Adaville Fm. replaces Lance and Lewis to west. It is characterized by gray calcareous sandstone, siltstone, carbonaceous clay, and coal.
	Lewis Shale	Sandy shales and clays of gray or drab color with calcareous concretions.
MESAVERDE GROUP	Almond Fm.	Gray sandstone interbedded with gray shale, gray carbonaceous shale, coal bearing.
	Erickson Fm.	Upper and lower massive conglomeratic sandstone separated by a rusty zone of thin bedded sandstone and siltstone.
	Rock Springs Fm.	Buff to light gray sandstone alternating with thick coal beds and carbonaceous shale, most important coal bearing formation.
	Blair Fm.	Gray marine shale and ripple marked sandstone.
	Hilliard Shale	Dark gray marine shale slightly gypsiferous, lens of finegrained sandstone.
	Frontier Fm.	Gray sandstone and shale.
	Aspen Shale	Gray to black siliceous shale.
	Bear River Fm.	Gray sandstone and shale.
	Gannett	Variegated shale, oolitic limestone, red shale.
	Nugget Fm.	Gray and buff sandstone.
		Variegated shale and sandstone. Red variegated gypsiferous shale.
PALEOZOIC	Phosphoria Fm.	Brown to gray dolomite.
	Thaynes-Woodside Dinwoody Fm.'s Weber Fm.	Gray sandstone and dolomite.
	Amsden (Morgan) Fm.	Red shale, white limestone and dolomitic sandstone.
	Madison Limestone	Massive, thin bedded blue and gray cherty limestone.
	Darby Fm.	Varicolored shale, sandstone, and dolomitic limestone.
	Big Horn Dolomite	Massive dolomite and limestone.
	Gallatin Limestone	Greenish gray limestone.
	Gros Ventre Shale	Gray and green shale and sandstone.
	Flathead Sandstone	Red and gray sandstone and quartzite.
PRECAMBRIAN		Crystalline rocks.

Figure 7
GENERALIZED STRATIGRAPHIC NOMENCLATURE CHART

TABLE 26

MILES OF SEISMIC LINES WITHIN PINEDALE RESOURCE AREA BY YEAR (1979-1985) (includes private and state lands)

Year	Miles
1979	263
1980	335
1981	875
1982	227
1983	48
1984	175
1985	179
Total Miles	**2,102**
Average Miles per Year	**300**

The Green River Basin is one of the largest basins in the Rocky Mountain region and may rank first in ultimate gas producing potential. A large share of the gas production occurs in the planning area in the Big Piney-LaBarge area on the Moxa Arch. This area is the leading gas-producing region in Wyoming and is also a major producer of oil (Geo/Resource 1984). Producing formations include the Wasatch, Fort Union, Adaville, Bear River and the Nugget Sandstone.

The Pinedale anticline contains a large gas accumulation within the Fort Union Formation, but because the rock has such low permeability, commercial production is currently marginal.

The Potential Gas Committee, in their 1984 report "Potential Supply of Natural Gas in the United States" indicate cumulative gas production in the Big Piney-LaBarge area as of December 31, 1984, at 1.86 trillion cubic feet. Remaining proved reserves are placed at 1.92 trillion cubic feet of gas. In addition, the currently developing Riley Ridge gas field contains an estimated 5.8 trillion cubic feet of methane plus 18.4 trillion cubic feet of CO_2. Around 90 percent of production in the planning area is produced from the Big Piney-LaBarge area.

Geologic Hazards

Geologic hazards of concern in the planning area are earthquake and landslide hazards. Active or potentially active faults, epicenters, and existing slope failures are shown on Map D.

Several faults which exhibit recent offset and are considered active, or potentially active, are located in the eastern part of the planning area. Historical seismicity shows no major earthquakes in the area, although earthquakes in adjacent regions may affect this area. Of the epicenter locations shown on Map D, the highest recorded magnitude is 4.3.

Landslide hazards are restricted to the westernmost portion of the planning area in the Overthrust Belt. This area is characterized by steep slopes with high moisture content (due to snowmelt), and clayey impermeable subsoils. The Green River/Wasatch Formation contact is susceptible to slumping and the Wasatch Formation itself contains considerable bentonitic clay which is prone to swelling and subsequent failure. Damages caused by landslides include soil loss, road damage and sedimentation of streams (Geo/Resource 1984).

A related danger involves avalanches which occur during certain snow conditions. Avalanches sometimes sweep across roads and are particularly hazardous to backcountry users such as skiers and snowmobilers. Surface disturbance such as drill pad construction and road building can serve to aggravate snowslide and landslide movements.

Solid Minerals

A number of thin coal beds are known to exist in the Adaville Formation within the planning area. A portion of the planning area falls within the Green River-Ham's Fork coal region. The coal beds are determined to be of limited quality or quantity and there has been little development activity in the past and none is anticipated during the next 20 years.

The southwest portion of the planning area has modest reserves of phosphate which have never been economically exploited. Due to the thin nature of the phosphate beds, and that the beds do not seem to contain potentially commercial deposits, no demand for leasing or development is expected.

The area contains modest reserves of low grade oil shale in the southwest portion of the planning area. The beds containing the oil shale are thin and have had little interest for development in the past. No development is anticipated in the future.

The phosphate and coal lands were withdrawn originally in 1910 to reserve these minerals for public use and protect them from speculators. The Mineral Leasing Act of 1920 provided for the leasing of these minerals, therefore, these minerals were no longer susceptible to speculation.

The oil shale withdrawal of 1968 was passed to preserve the oil shale until regulations could be written to define the method of leasing and fair market value to be assigned to this mineral.

Currently, no acreage has been leased for solid minerals.

Withdrawals

Currently, 196,830 acres are under a coal withdrawal; 41,380 acres are under a phosphate withdrawal; and 30,080 acres are withdrawn for oil shale. These withdrawals were established for the protection of the minerals and prevented the establishment of claims by location. The oil shale withdrawal also withdrew those areas from exploration and development of all locatable minerals. The Mineral Leasing Act of 1920 provided that deposits of coal, phosphates, and oil shale would be acquired through a leasing system and were no longer available for location. This action basically eliminated the need for the withdrawals, coupled with the fact that commercial quantities of these minerals really do not exist in the resource area. Due to the lack of potential for development, no leasing is expected to occur. The purpose for which the withdrawals were established is no longer pertinent.

Extensive deposits of commercial grade alluvial sand and gravel can be found along most drainages in the planning area. Past use of sand and gravel was limited to a few highway department material sites and private and public use from community pits. Recently, the demand has increased with the development of the oil and gas activity and associated highway construction in the Overthrust Belt.

Approximately 80 acres in the planning area are developed for sand and gravel.

Decorative building stone can be found in great abundance in the southwestern part of the planning area in Tps. 26 and 27 N., R. 115 W., and in parts of T. 25 N., Rs. 114 and 115 W. along LaBarge Creek and Miller Mountain. It occurs as a moss-covered sandstone on talus slopes at the base of massive cliffs in the Nugget Formation (Triassic-Jurasic Age).

Considerable moss rock extraction has occurred in the LaBarge Creek area. It is anticipated that this rock will continue to be in demand. Currently, the moss rock is located in the Lake Mountain WSA. Management under Interim Management Policy and Guidelines for lands under wilderness review management preclude sale of the rock until Congress acts upon the recommendation for nonwilderness.

There are several inactive mining claims encompassing some 20,000 acres in the planning area. The main reason for the low level of claims and no activity seems to be the low occurrence of such minerals as uranium, copper, gypsum, and gold. These minerals are known to exist in small scattered noncommercial quantities. No activity in relation to the extraction of these minerals currently exists and none is anticipated in the future. There are no producing mines at the present time in the area. The potential for producing mines is low to nonexistent due to the lack of, or low concentration of, minerals in the geological formations throughout the area.

Paleontology

The Green River and Wasatch Formations outcrop over a large portion of the planning area. The Green River Formation is one of the largest documented accumulations of lacustrine sediments in the world and is particularly well known for its outstanding and abundant specimens of fossil fish and other vertebrates. The Wasatch Formation is composed mainly of fluvial deposits and is best known for its fossil mammals and mollusks. The two formations were deposited somewhat contemporaneously and can be thought of as a gigantic lens of lacustrine sediments, representing the Green River Formation, encased within the fluvial beds of the Wasatch Formation (Grande 1980; McGrew and Casilliano).

Several important fossil quarry sites in these formations exist in the Green River Basin and Fossil Basin areas including Fossil Butte National Monument. No sites exist in the planning area but good potential for fossil discoveries does exist.

SOILS

Soils of the planning area have formed from a wide variety of geologic material, ranging from formation over in situ geologic parent material rock (termed residuum) to those formed in material transported by wind (aeolian deposits), water (alluvium), gravity (colluvium), and ice (glacial till). These parent materials, along with variable climate, topography, vegetation, and management, produce soils with diverse characteristics.

A general soils map (Map D) of the planning area has been developed based upon interpretive grouping of land form and soil information found in the general soil maps of Sublette and Lincoln counties. Due to the broad delineations, this map is meant for general planning rather than for decisions on the use of specific tracts. The resource area has been divided into 25 geomorphic soil subgroups describing slope, depth, texture, and general soil characteristics. For discussion purposes, these subgroups have been combined into five major geomorphic groups.

Geomorphic Group I - Soils of the Mountains

These soils are located along the northeast and western borders of the planning area and make up 20 percent of the total area. Parent materials include residuum from sedimentary and igneous rock, colluvium from landslides and earthflow, and alluvium in fans and drainages. Glacial till occurs along the Wind River front. Slopes range from gently sloping to very steep (3 to 70 percent) with very shallow to deep gravelly, loamy, and clayey soils predominating. Coniferous vegetation and aspen are often present on the north facing slopes which receive greater effective precipitation resulting in higher productivity and organic matter enrichment. The steep slopes, short growing season, and high landslide potentials limit management opportunities in these areas.

Geomorphic Group II - Soils of the Foothills

These soils are located in the northwest central and southwest central portions of the planning area and make up 13 percent of the total area. Dominant parent materials consist of residuum formed over upthrusted sediments, colluvium in the form of landslide and earthflow deposits, and alluvium on footslopes and drainages. The shallow to moderately deep well-drained soils are found in rolling to steep (6 to 60 percent slope) topography. Geologic overthrusting and resulting mixed exposures (parent materials), have produced variable soil textures and very complex soil/landform relationships. Opportunities to mitigate adverse impacts to soils are limited by the dominance of shallow soils, low precipitation, and moderate to high landslide potential.

Geomorphic Group III - Piedmonts and Alluvial Fans

These soils are found in the central western portion and along the mountains on the northeast edge of the planning area. These soils make up 19 percent of the total area. Alluvial parent materials on terraces, fans, and pediments have formed soils on nearly level to moderately steep (0 to 30 percent) slopes. Features are generally well drained gravelly and cobbly sandy loams. Limiting management features are occasional steep slopes coupled with alkaline areas in alluvium and cobbly surfaces in glacial moraines.

Geomorphic Group IV - Soils of the Uplands

These soils dominate the central and southeast half of the planning area. Upland soils make up 34 percent of the total area. Residuum found over flat lying sediments, dune-like aeolian deposits, and alluvium from the uplands prevail. Soils are generally alkaline, ranging from shallow to deep on a nearly level to very steep (0 to 70 percent slopes) topography. Although usually well drained, areas of shale uplands and badlands have clayey textures and salinity problems resulting in poor availability of moisture to plants. The yellow point sand dune areas have sandy and loamy soils which are excessively drained with little water holding capacity. The combination of low precipitation, salinity, and excessively drained soils limits opportunities to mitigate impacts to soils. The soils of this group in the basins are generally formed in shales producing clayey textures, poor infiltration, high runoff, and high potential for slumping.

Geomorphic Group V - Soils of the Floodplains

These soils are associated with major drainages and are found throughout the central portion of the planning area. These soils make up 14 percent of the total area. These nearly level to rolling (0 to 10 percent slopes) soils are generally deep, variable in texture, and derived from alluvium. Although usually productive, areas of saline-alkaline affected soils limit vegetation production.

Specific soil information on 37 percent of the surface within the planning area is available in the form of five, area specific, published soil surveys. A brief description of these surveys is as follows:

Big Piney-LaBarge Area Soil Survey (ERO 1985) is in the western portion of the planning area. This order III soil survey covers 410,000 acres and was completed in 1984. In addition to standard land use soil interpretations, reclamation potentials of soils in the area have been highlighted.

The Riley Ridge Natural Gas Project Soil Survey (USDI/USDA 1983b) is in the western portion of the planning area. This soil survey is a combination of two contract soil surveys, one by ERT in 1982, and one by Bio/West, Inc. in 1982. This survey covers 108,000 acres and was made for the purpose of surface reclamation.

The Blue Rim Area Soil Survey (USDA 1973) is in the eastern portion of the planning area. This order III soil survey covers 56,000 acres and was completed in 1972. This survey was predominantly made for rangeland management.

The Soap Holes Area Soil Survey (Fowkes 1967) is in the northern portion of the planning area. This order III soil survey covers 9,114 acres and was completed in 1967. This survey was predominantly made for rangeland management, highlighting irrigability of soils in the area.

The Scab Creek Area Soil Survey is in the northeastern portion of the planning area. This reconnaissance soil survey covers 7,636 acres and was completed in 1980. This survey was made in support of the Scab Creek wilderness suitability report.

WATERSHED

Surface Water

There are approximately 2,393 miles of stream, with annual discharge ranging from 600,000 acre feet to 1,120,700 acre feet annually, depending on the year (USGS 1978 to 1983).

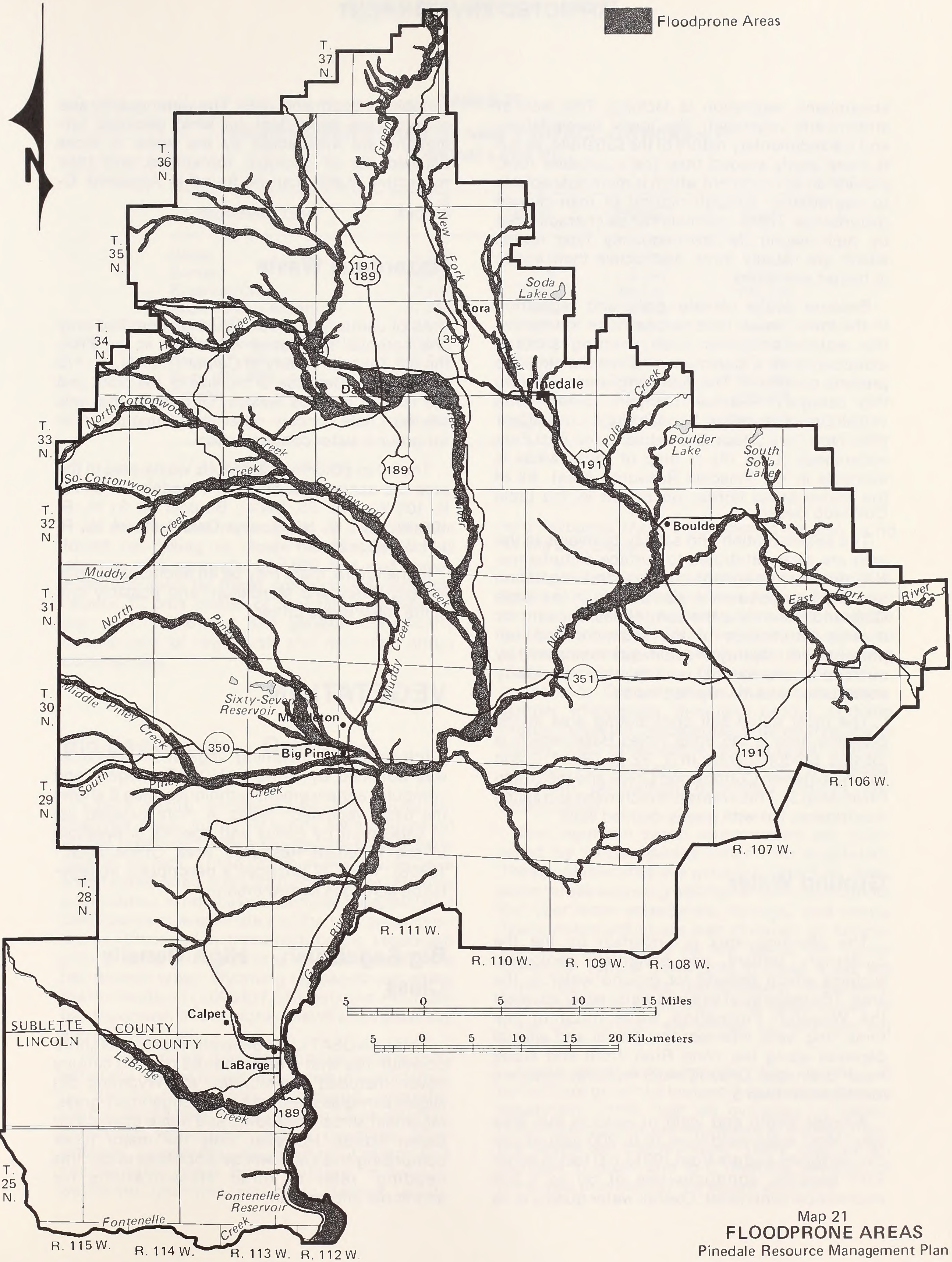
Most runoff from the area is directly attributable to snowmelt; however, frontal and convective storms in spring, summer, and fall account for high stream stages in some areas. Moisture from both snow and rainfall ranges from 8 to 20 inches annually depending on the elevation. The lower elevations around the desert area receive about 70 percent of the moisture in the form of rainfall. Snow accounts for approximately 60 percent of the moisture in the higher elevations along the Wind River and Wyoming ranges.

Water in the planning area is predominantly used for wildlife, livestock, irrigation, and recreation. A much smaller portion of the water, whether ground or surface water, is used by the municipalities of Big Piney, Marbleton, Daniel, Pinedale, Boulder, and several other communities.

The floodplains along the Green, New Fork, East Fork, Cottonwood, LaBarge, and Piney Creek drainages are predominantly on private lands and include much of the flood prone areas delineated by the USGS and HUD. Of this area, about 198,000 acres are under irrigation for hay (137,000 acre feet of water/year) (Map 21).

Watershed conditions throughout the higher elevations are good because of the more abundant streamside vegetation and the crystalline substrate which allow for the formation of stable well-armoured channels. Because of the distribution and amount of precipitation, these streams are indicative of the high frequency low magnitude flooding which is less likely to initiate channel degradation and regrading. The following areas fall into this category: Scab Creek, Upper Green River, North LaBarge, Upper Deer Hills, Round Valley-Rye Grass, Bench Corral, South LaBarge, Green River, Beaver, and LaBarge (a map of these areas is available in the Pinedale Resource Area).

Many intermittent or ephemeral streams at lower elevations are in poor condition because



Map 21
FLOODPRONE AREAS
Pinedale Resource Management Plan

streambank vegetation is lacking. The lack of streambank vegetation, the lower precipitation, and the sedimentary nature of the substrate, which is more easily eroded than the crystalline rock, provide an environment which is more susceptible to degradation through natural or man-caused disturbance. These channels can be characterized by high-magnitude low-frequency type floods which are usually more destructive than floods at higher elevations.

Because of the climate, soils, and vegetation in the lower areas, little can be done to improve the watershed other than keeping surface disturbance to a minimum and maintaining the present condition. The following areas fall into this category: Reardon Canyon, Desert Area (Alkali Draw), Blue Rim, Sand Springs, Lower Deer Hills, New Fork (Mesa, Soap Holes), and East Fork watersheds (URA III) (a map of these areas is available in the Pinedale Resource Area). All of the above areas border on or are in the Little Colorado Desert.

The sedimentation and salinity problems in the area are often attributed to surface disturbance. Natural geologic erosion, due to sparse vegetation and highly erosive soils, particularly in the Little Colorado Desert and the Soap Holes, account for a large percentage of the sediment and salt present. The majority of sedimentation caused by surface disturbance is due to improperly constructed and maintained roads.

The most noted salt contributing area in the planning area is the Soap Holes Basin which is located predominantly in T. 32 N., Rs. 110 and 111 W., between Cottonwood Creek and the Green River (Map 3). This area is characterized as a saline subirrigated flat with poorly drained soils.

Ground Water

The planning area is underlain by the the quaternary, tertiary, and pretertiary geological systems which provide for ground water in the area. The majority of existing water wells intersect the Wasatch Formation while most of the remaining wells intersect the glacial and alluvial deposits along the Wind River front and along major drainages. Ground water recharge areas are identified on Map 3.

Average depth and yield of wells in this area vary. Most wells yield from 10 to 300 gallons per minute (gpm) and are from 100 to 700 feet in depth with specific conductivities of 50 to 1,500 micromhos/centimeter. Overall water quality is as variable as depth and yield. The water quality and quantity are dependent on what geologic formations are intersected by the wells. A more detailed list of geologic formations and their respective quality can be found in Appendix C-5.

Hazardous Waste

As of January 1, 1985, DEQ has identified only one potential hazardous waste site in the PRA; the old Texaco refinery at Calpet (T. 27 N., R. 113 W., Sec. 34). Because of the size of the plant and the lack of obvious wastes, DEQ feels that this site is of little concern other than some potential for ground water contamination.

The other potential hazardous waste sites in the area are sanitary landfills for Pinedale (T. 34 N., R. 109 W., Sec. 25, SW¼); Boulder (T. 31 N., R. 108 W., Sec. 9, NE¼); and Daniel (T. 34 N., R. 111 W., Sec. 23, SW¼).

In the future, there may be an additional landfill for Big Piney and Marbleton; and possibly one at the Riley Ridge project.

VEGETATION

Information concerning vegetation resources was obtained by using LANDSAT imagery and computer enhancement techniques. Map E shows the basic vegetation types. A more detailed list of vegetation by genus and species is available in the Pinedale Resource Area Office (USDI 1985b). Table 27 provides a description of vegetation acreages by ownership.

Big Sagebrush - High Density Class

This LANDSAT class generally represents shrub communities with greater than 35 percent canopy cover. Included communities are Wyoming big sagebrush-grass, mountain big sagebrush-grass, mountain shrub, meadows, and some open cover aspen stands. However, only the major types comprising this class will be discussed under this heading; refer to other classifications for additional information.

TABLE 27
LAND COVER ACREAGE AND SURFACE OWNERSHIP[1] (Landsat Level II)

Vegetation Type	Federal	State	Private	Total
Water	1,278	5	2,123	3,411
Barren	29,129	1,979	9,194	40,331
Riparian/Crop	7,138	7,585	180,541	195,536
Aspen/Open Aspen	7,225	853	10,820	18,910
Saltbush	32,693	1,731	3,292	37,743
Salt/Greasewood/Sage	50,062	2,821	5,139	58,047
Sage (LT 35% cover)	499,542	35,318	143,266	678,458
Sage (GT 35% cover)	278,063	32,855	240,110	551,398
Conifer	25,455	1,763	6,596	33,828
Total	**931,000**	**85,000**	**602,000**	**1,618,000**

[1] All figures are rounded.

All communities represented in this class are found on rolling to steep topography, on all aspects, and generally at 7,000 feet and above. Sites occupied by these communities generally receive 12 plus inches of available precipitation per year. Following are general community descriptions of sagebrush and mountain shrub communities.

Big Sagebrush - Grassland

These shrub communities are found on relatively deep, loamy or sandy soils dominated by big sagebrush with a canopy cover of greater than 35 percent. These communities usually have a well established grass/forb component. Species composition is reflective of climatic, edaphic, and disturbance characteristics of the site; production is also influenced by these factors. Big sagebrush communities in the planning area can be split into two distinct types: Wyoming big sagebrush at the lower elevations (7,000 to 7,500 feet) and mountain big sagebrush at the higher elevations (generally above 7,500 feet).

The Wyoming big sagebrush community generally has the following species in association: big sagebrush, Douglas rabbitbrush, winterfat, slender buckwheat, phlox, thickspike wheatgrass, bluebunch wheatgrass, Indian ricegrass, bluegrasses, junegrass, squirreltail, Letterman's needlegrass, great basin wildrye, milkvetch, wallflower, gromwell, groundsel, lupines, violets, and fleabanes. Many other species are also found in this association.

The mountain big sagebrush community is found at higher elevation sites (above 7,800 feet) in areas generally receiving 15 inches available precipitation yearly. This community is dominated by mountain big sagebrush, with the following plants in association: bitterbrush, snowberry, buckbrush, Oregon grape, buckwheat, phlox, slender wheatgrass, mountain brome, nodding brome, columbia needlegrass, blue wildrye, Idaho fescue, king spikefescue, bluegrasses, lupines, hyssop, hawksbeard, delphinium, fleabanes, geranium, penstemon, groundsel, clovers, and death camas.

The mountain shrub communities are dominated by shrub species other than sagebrush. These communities are generally found on deep, loamy areas receiving additional water throughout the year from snowbanks, springs, and seeps. These communities are also common on cobbly, droughty sites such as are found on glacial moraines. Typical dominants in these areas are bitterbrush, currants, serviceberry, snowberry, and snowbrush ceanothus. The understories of these communities are similar to mountain big sagebrush.

Aspen stands with a canopy cover less than 40 percent are generally lumped into the high density sagebrush. Other than an overstory of aspen, these communities are equivalent to the mountain big sagebrush communities. There may be an increase in grass and forb diversity because of the shade provided by the aspen overstory.

Sagebrush and mountain shrub communities dominate the majority of the land in the planning area. Many of these communities and soil associations supporting them have the ability, through manipulation, to increase herbaceous production. Manipulations are generally planned to benefit livestock or wildlife production. Chemical and fire techniques are the most practical methods to utilize in changing community dominance, although other means such as mechanical treatments are also utilized. The high density category (greater than 35 percent canopy cover) was utilized to identify areas in which manipulation would be economically feasible. It is felt that areas capable of supporting high density shrub cover have the potential to increase herbaceous production once the shrub cover is removed.

Low Density Sagebrush Class

Encompassed in this LANDSAT class are communities dominated by various shrubs, but with a canopy cover lower than 35 percent. These communities are found primarily in the basin portions of the planning area. Communities dominated by black sagebrush, alkali sagebrush, and three-tip sagebrush are found at the higher elevations on dry ridges in the area. Because this class includes numerous communities, a low density shrub community with a grass-forb layer, it can be found on all slopes, aspects, and most substrates.

The big sagebrush community is also a part of this class and is described under high density sagebrush class. These communities generally occupy the drier, loamy or sandy (7 to 9 inch precipitation) sites and areas of shallow, loamy/sandy soils. The structure of these communities is similar to that of the big sagebrush community described above. Species composition, however, is often slightly different due to the different edaphic and climatic conditions. Species commonly found in association with Wyoming big sagebrush are: horsebrushes, rabbitbrushes, spiney hopsage, winterfat, phlox, sandberg bluegrass, thickspike wheatgrass, western wheatgrass, Indian ricegrass, bottlebrush squirreltail, and needleandthread. Forbs often in association are: scarlet globemallow, sand penstemon, sandwort, desert wallflower, cushion buckwheat, fleabanes, biscuitroots, and tansymustard.

The low sagebrush communities are another component of this class. These communities are found on droughty, wind swept ridges and(or) areas of shallow soil (either depth to bedrock or due to a calcic or strongly alkaline horizon).

These communities are dominated by one of the low growing sagebrushes, either alkali sagebrush or black sagebrush. These two shrubs reach an average height of 1 to 1.5 feet and are interspersed with grasses, forbs, and bare ground. Common species in association with alkali sagebrush are: shadscale, western or thickspike wheatgrass, bottlebrush squirreltail, sandberg bluegrass, scarlet globemallow, cushion buckwheat, milkvetches, and other forbs. This community may often be found on strongly alkaline soils.

Black sagebrush communities are often found in association with shallow, calcareous soils in areas with an available precipitation of 10 to 14 inches. Common species in association are: bitterbrush, mountain mahogany, phlox, sandwort, bluebunch wheatgrass, Indian ricegrass, Canby's bluegrass, sandberg bluegrass, fleabanes, violets, spring beauties, and numerous other forbs.

Another component of the low sagebrush class is the desert shrub community. These communities are found on the sandier soils of the 7 to 9 inch precipitation zone in the southern one-third of the planning area. Communities dominated by rabbitbrush often represent a seral stage of the sagebrush - grass community. Other communities may be dominated by spiney hopsage and(or) less frequently by horsebrushes. The grass and forb species represented are generally the same as found in the sagebrush community. Indian ricegrass tends to dominate the grass layer.

The final major community type included in this class is the grass type. Grass types are included here because of reflective (LANDSAT) similarities with other low density vegetation types. The grass type is generally found on the shallow ridges of the Overthrust Belt on the western side of the planning area. Species frequently found in these communities are: Wyoming big sagebrush, bluebunch wheatgrass, Indian ricegrass, needlegrasses, prairie junegrass, and Sandberg bluegrass.

These communities are not a major producer of forage because of droughty, shallow soils. Shallow soils and droughty conditions limit the feasibility of manipulating these communities to achieve greater production, diversity, or dominant species change. Reseeding these communities after disturbance is dependent on rainfall.

Livestock utilization is generally dependent on the location of water sources. Cattle utilization of grasses and forbs is probably high to moderate during spring and early summer. Sheep usage during the winter is probably moderate on shrubs, half shrubs, and grasses.

The low elevation sagebrush communities are important summer and winter range areas for antelope; otherwise these areas are of minimal importance to big game species. Many nongame species, birds and mammals, utilize these communities throughout their life cycle. Sage grouse utilize these communities extensively for strutting, nesting, and rearing young. Wild horses will utilize these areas (grasses and shrubs) extensively within the horse herd areas in the southern part of the planning area.

Saltbush Class

The saltbush classification contains two community types: saltbush and half shrub.

A typical saltbush community may be found on badland clay soils, colluvial deposits, and alluvial out washes. The topsoils will be high in salt or exchangeable sodium. Soil depths vary from shallow on the upland communities, where clay shales form the bedrock, to deeper on the alluvial out washes. The plants inhabiting this community are salt tolerant, and include Gardner's saltbush, spineless horsebrush, winterfat, birdsfoot sagebrush, bud sagebrush, greasewood, Indian ricegrass, thickspike wheatgrass, and squirreltail.

A half shrub community would occur on sites characterized by heavy clay soils with slow permeability, and perhaps on shallower clay soils with a shale bedrock, such as basins and flatlands. The plant species occurring here are shallow rooted and salt tolerant. They include bud sagebrush, winterfat, buckwheats, Gardner's saltbush, low rabbitbrush, spineless horsebrush, rhizomatous wheatgrass, and squirreltail.

The primary use of these communities is for livestock and wildlife forage. Because of climatic and edaphic limitations, manipulation of the communities is restrictive. Before implementing management practices, such as grazing systems and rehabilitation, a thorough analysis should be conducted which considers community structure and potential.

Aspen Class

In order to eliminate spectral confusion encountered with the LANDSAT imagery for the aspen classification, an elevation strata was employed. Through use of aerial photo interpretation it was decided that the spectral class representations below 7,700 feet would be riparian communities and those above this elevation would receive the aspen designation.

The aspen classification will include two community types: the aspen community and the sagebrush community. The sagebrush community within the aspen complex is described in more detail under the sagebrush classification.

Aspen communities commonly occur as transitional situations between sagebrush and conifer zones. Besides on fringes of conifer stands, they may also exist on northern and eastern exposures where snow accumulation increases moisture availability. Soils will be well drained with a high organic content in the surface.

The understories of stable aspen stands are usually dominated by a rich mixture of shrubs, grasses, and forbs. Major understory species include mountain brome, nodding brome, slender wheatgrass, Columbia needlegrass, Idaho fescue, Onion grass, alpine timothy, cow parsnip, columbine, tall larkspur, green gentian, Bluebells, geranium, western yarrow, and lupine. Many aspen types contain a shrub understory which may contain snowberry, currants, wood rose, willows, and elderberry. Where livestock grazing pressure is high, the shrub layer may be sparse or nonexistent.

The aspen community is important to both livestock and wildlife because of the abundant forage production and cover. Recreationists are attracted to aspen communities to enjoy camping, hunting, scenery, and wildflower viewing.

Aspen stands are considered to be seral communities, and if left undisturbed, will eventually develop into a conifer association. Management to maintain an aspen stand typically involves disruption of the overstory, either by logging or burning, to provide root-sprouting of aspens. This also encourages an increase in grass and forb production for livestock and wildlife purposes. Another management consideration is that cattle tend to congregate in the shade of aspen trees which leads to eventual depletion of the forage resource. Grazing systems can be developed to prevent such situations from occurring.

Riparian Complex Class

The communities of the riparian complex classification include hayland, natural meadow, willow, cottonwood, sagebrush, and greasewood. These communities can be found on level or gently sloping ground near springs, seeps, sloughs, and along perennial or intermittent streams. The presence of available water is the main factor in the development of riparian communities.

Soils are normally deep, rich loams, high in organic matter. An exception would be found in a moist greasewood community, where the subsoils may be moderately to strongly alkaline.

A natural meadow community may be found where springs and seeps occur, perhaps at the base of a hill, or the downhill side of an aspen stand, or in drainage bottoms. Plant composition is mostly comprised of grasses and forbs. The species in meadows with a high moisture regime might include tufted hairgrass, brookgrass, Nebraska sedge, elephant head, blue-eyed grass, horsetail, iris, juncus, buttercups, along with other grasses, sedges, and forbs.

On drier meadows and at the fringe of wet meadows, more mesic grass species may occur; also Idaho fescue, along with shrubby invaders such as silver sagebrush and shrubby cinquefoil.

Hay meadows in the area are located on private lands and primarily occur along the major drainages. They include both native and improved seeded species.

Willow communities exist along many water courses, especially those draining the Wyoming Range west of Big Piney and LaBarge. A dense overstory of willows is the most obvious characteristic in this association. Understory species would include those common in the moist meadows.

Also found along water courses are the cottonwood communities. Many of these tree stands are situated on private lands adjacent to the Green and New Fork rivers, although some BLM-administered islands and isolated tracts are inhabited by cottonwood communities.

Cottonwood is the obvious overstory species in the community structure. Under optimum conditions the vegetation beneath the canopy may be high in diversity. Many woody species may occur such as willow, rose, buffaloberry, dogwood, silver sagebrush, big sagebrush, and snowberry. Underneath the shrub layer is a variety of forbs and grasses. These include asters, clovers, fleabane, penstemons, violets, western yarrow, wheatgrasses, basin wildrye, reedgrass, redtop, bluegrasses, sedges, spike fescue, and squirreltail.

The big sagebrush community may appear under the riparian complex classification. It is described in the above text.

Greasewood communities exhibiting a high moisture content may also come under the riparian complex classification. There will probably be an increase in soil alkalinity in these communities. Further description can be found under the saltbush, greasewood, sagebrush complex class.

Because of its relationship to water and resultant high forage production, riparian communities are very important to livestock and wildlife. Natural meadows and cottonwood bottoms are valuable components of any grazing allotment. The communities along stream courses provide food, cover, and water for many wildlife species.

Because of the use demands on riparian communities, management considerations have focused on protecting these areas from depletion of both the forage and wildlife resources. Fencing has been an effective tool in maintaining and improving the qualities of the riparian ecosystems. Grazing systems also have their merit, although none in the planning area have yet been specifically designed toward riparian community enhancement.

Saltbush, Greasewood, Sagebrush Complex Class

Various vegetation types may occur within this complex. These include greasewood, Gardner's saltbush, sagebrush, and half shrub communities, all of which share soil properties characterized by alkaline conditions, some impermeability due to high clay content, and topsoils usually high in exchangeable sodium. Because of these factors, vegetation densities would normally be low. Topographically, these communities can be located from basins and drainages to upland, dry slopes.

Greasewood communities are dominated by greasewood. Canopy closure will vary from 15 to 60 percent depending on the climatic and edaphic conditions of the site. The planning area contains several variations of this community. The most common is found in the basins with heavy, dense soils which often have a high alkalinity. In these areas greasewood is found in association with saltbush, squirreltail, alkali sacaton, sandberg bluegrass, foxtail barley, meadow barley, tansy mustard, and scarlet globemallow. Forage production is generally low because of the restrictive nature of the dense, salty soil and the types of plants adaptable to these conditions. Production would be higher in areas with a higher moisture content, although areas in the Soap Holes, which have a high alkalinity and high moisture content, will only support islands of greasewood.

Another greasewood dominated community is found generally on the west side of the Green River in upland positions on rolling to steep topography. It is found on a sandy clay which is neutral to alkaline. Plants in this association include greasewood, shadscale, spiney hopsage, rubber rabbitbrush, Indian ricegrass, thickspike wheatgrass, great basin wildrye, bluegrasses, miner's candle, buckwheats, sandwort, and phlox.

Some communities in the saltbush, greasewood, sagebrush complex may be dominated by sagebrush. The sagebrush species present would likely be the dwarf varieties such as alkali sagebrush, and Wyoming big sagebrush. Topographic locations would be flat areas with a high clay content and upland slopes containing sands or clays. Species in this association include squirreltail, Indian ricegrass, rhizomatous wheatgrass, bluegrasses, greasewood, rabbitbrushes, birdsfoot sagebrush, bud sagebrush, Gardner's saltbush, horsebrushes, and winterfat.

Where Gardner's saltbush is the dominant member in the complex, a saltbush community would be expressed. Refer to the saltbush community for a description.

Likewise, when half shrubs are more evident in the complex, there would be a half shrub community, also described in the above text.

The saltbush, greasewood, sagebrush complex seldom contains pure community types, and if so, their occurrence is minimal. More likely an intergrading of these types will be encountered which leads to problems in classification exactness.

The major uses occurring within this complex are livestock grazing, wildlife habitat for antelope, recreational use, which may consist of rockhounding and sightseeing.

Management opportunities are normally generated by conditions brought about by livestock grazing or wildlife habitat requirements. Grazing management systems should consider and be timed around carbohydrate reserve cycles for the species present in the complex.

Vegetation manipulation is limited in this complex by edaphic and climatic conditions. Areas are difficult to revegetate because the rehabilitation species may not be well adapted to the conditions, precipitation is low and erratic, the shallow soils are underlain with salts, and seeds and seedlings are subject to predation by insects and small rodents. Generally, rehabilitation should be attempted only on badly depleted sites using methods that save as much native vegetation as possible and allow seeded plants the best access to water.

Conifer Class

The LANDSAT conifer class includes the areas with closed canopy conifer stands. These stands occur on the western, northern, and eastern edges of the planning area. At lower elevations the forest types are found on northern and eastern slopes due to additional moisture available; at higher elevations the forest types are more extensive, occupying all aspects.

Timber types grouped under this class include lodgepole pine, subalpine fir, Douglas fir, Engelmann spruce, limber pine/white bark pine complex (canopy closure greater than 30 percent), and some scattered blue spruce.

Many different plant associations may occur under the above timber types and are dependent on soils, aspect, moisture, and light availability. A complete description of forest habitat types and plant communities is discussed in USDA 1983.

These communities do not produce a great deal of forage for livestock because of soil conditions and lack of light. Livestock do use these areas for shade in the summer. Wildlife utilize these areas primarily for cover and some browse.

Barren Class

The barren classification contains lands with less than 10 percent ground and aerial vegetation coverage. This includes natural and man-made phenomena, i.e., rock outcrops, badlands, slick spots, steep slopes, roads, developments, etc. Production levels are minimal in these areas with little or no potential for improvement. Culturally barren areas can and may be reclaimed/revegetated at a later time. Use of these areas by livestock and wildlife is minimal.

Poisonous and Noxious Plants

Common poisonous plants found in the planning area include arrowgrass, chokecherry, cocklebur, deathcamus, greasewood, halogeton, horsebrush, larkspur, locoweed and milkvetch, lupine, and tansymustard.

Common noxious plants found in the planning area include black henbane, Canada thistle, field birdweed, hoarycress, houndstongue, leafy spurge, musk thistle, oxeye-daisy, perennial pepperweed, perennial sowthistle, russian knapweed, and toadflax.

WILDLIFE

Big Game Species

A wide variety of game and nongame fish and wildlife occupy the diverse vegetation associations found in the planning area. Big game species (elk, moose, mule deer, and pronghorn antelope) have generally received the most management emphasis due to their importance to the local economy. Hunting and fishing activities have historically been the third highest income-generating industry in Sublette County.

Data on big game populations are compiled by the Wyoming Game and Fish Department and compiled on a herd unit basis. Population estimates, trend and strategic plan objectives are shown in Table 28.

Normally, heavy winter snows lasting four to six months reduce the amount of suitable winter range to the extent that BLM-administered lands provide the bulk of crucial winter habitat for pronghorn antelope, mule deer, and elk populations found in the upper Green River basin. The BLM-administered lands also contain antelope summer range, mule deer summer/yearlong habitat, and elk summer range. Moose occur predominantly on riparian areas associated with willows on public lands. Habitat status for big game is shown on Table 29.

TABLE 28

BIG GAME POPULATION STATUS
(Sublette Planning Unit)[1]

			Population Estimate			
Species	Herd Unit	Hunt Areas	1984 Post Season	1985 Preseason	Population Trend	Population[2] Objective
Elk	Upper Green River	93/95/96	1,600	2,000	Stable	2,100
	Pinedale	97/98	1,500	1,800	Stable	1,550
	Piney	92/94	2,100	2,730	Down	2,150
	Hoback	86/87	840	1,000	Stable	900
	West Green River	102/103/104	3,330	3,816	Down	3,000
Moose	Sublette	3/4/5/22/24/25	2,008	2,232	Down	2,000
	Lincoln	26	797	930	Down	1,000
Antelope	Sublette	85-92/96/107	21,900	25,400	Down	19,400
	West Green River	93	3,995	5,123	Up	3,000
Mule Deer	Sublette	138-142/153/154/162	2,500	3,000	Up	10,000
	Wyoming Range	135-137/143-145/147	28,136	29,727	Up	38,000

[1] Data from Wyoming Game and Department Annual Big Game Herd Unit Reports, 1984, Districts I & IV.

[2] Post season population.

TABLE 29

TERRESTRIAL WILDLIFE HABITAT STATUS (Mammals)

Terrestrial Species (Mammals)	Summer Range			Winter Range			Winter/Yearlong Range			Crucial Winter Range			Crucial Winter/ Yearlong Range	Crucial Parturition Areas			Total Habitat
	Acres Public Land[1]	Quantity[2]	Quality[3]	Acres Public Land	Quantity	Quality	Acres Public Land	Quantity	Quality	Acres Public Land	Quantity	Quality	Acres Public Land	Acres Public Land	Quantity	Quality	Acres Public Land
Antelope	710,099	S	E	654	D	F	54,687	D	F	59,840	D	F	75,965	21,640	S	E	901,245
Mule Deer	114,840	D	E	19,000	D	F	147,400	D	F	169,900	D	F	-	12,700[4]	D	E	451,100
Elk	47,750	D	G	31,680	D	F-P	37,440	D	F-P	77,490	D	F	18,100	56,080[4]	D	E	212,460
Moose	122,700	D	G	-	-	-	30,800	D	F	-	D	F	39,100	-	-	-	192,600

[1] Represents acres of public land within planning unit boundaries.

[2] Represents habitat quantity as I-increasing; S-stable; D-decreasing.

[3] Represents habitat quality as E-excellent; G-good; F-fair; P-poor.

[4] Duplicates acreage of other seasonal ranges (Summer and Winter/Yearlong). Not added in total acreage value.

Antelope populations have undergone several major fluctuations over the years. Most of the drastic population declines are attributed to severe winter conditions. Mortality may reach 40 to 50 percent of the population at times.

Antelope seasonal use and hunt areas are shown on Map 22. Timing of annual migration varies with the yearly climatic conditions but is usually underway by October. Antelope may remain on the winter range until May, but normally begin moving back to the summer range during April.

During open winters, antelope are much more dispersed and utilize a much greater area. Under severe winter conditions, the animals are confined to limited crucial ranges. These sites are generally the lower south-southwest facing slopes that remain open during adverse conditions. Because of their characteristics, these limited crucial areas are extremely important for antelope survival. Sagebrush is the key winter forage species with salt desert shrubs being important in specific areas.

Summer habitat is present throughout the planning area (Map 22). The most productive habitat is found on the higher open benches with greater forb diversity and plant succulence. The ratio of does to fawns has consistently been higher on these ranges than on the drier summer habitat to the south.

Water may be a limiting factor in the Little Colorado Desert unit in hunt area 90. A considerable amount of water development has been completed in this area for livestock grazing. Normally, adequate water is present in reservoirs and wells during the grazing season. During dry years, when the reservoirs are dry and the wells turned off, only limited water is available in the fall. To alleviate this situation, five strategically placed wells are kept on until adequate snow is present. It may be desirable to provide additional water sources during exceptionally dry years.

Antelope movements are impeded by fences that are improperly located or designed. Any new or reconstructed fences have been built in accordance with BLM Manual 1737. With the exception of highway fences, there are no known major problem fences in the planning area. Problems arise during snow buildup on the southern boundary fences. The area between the bottom wire and the ground becomes blocked by crusted snow. In the past, gates have been opened to alleviate this problem during severe snow years.

Mule deer populations in the planning area have a history of severe fluctuation. Most of the drastic population declines are attributable to severe winter conditions. Mortality may reach 30 to 50 percent of the population under certain conditions.

Mule deer seasonal use and hunt areas are shown on Map 23. Traditionally, most of the deer in Sublette County are migratory and very few animals winter above Pinedale. Mule deer usually move on to the winter ranges during November. They remain there until mid-April or May when they begin their movement to the summer range.

Winter range is considered the limiting factor for mule deer within the planning area. Crucial winter habitat represents those areas where most members of a population are forced to subsist during maximum snow cover each year. These areas are usually in lower elevations with favorable aspect (south-southwest facing slope) or on mesa tops where the snow is blown clear. Big sagebrush is the key species on most ranges but may be supplemented by limited quantities of mountain mahogany, rabbitbrush, bitterbrush, and serviceberry on the winter ranges in the southwestern portion of the planning area.

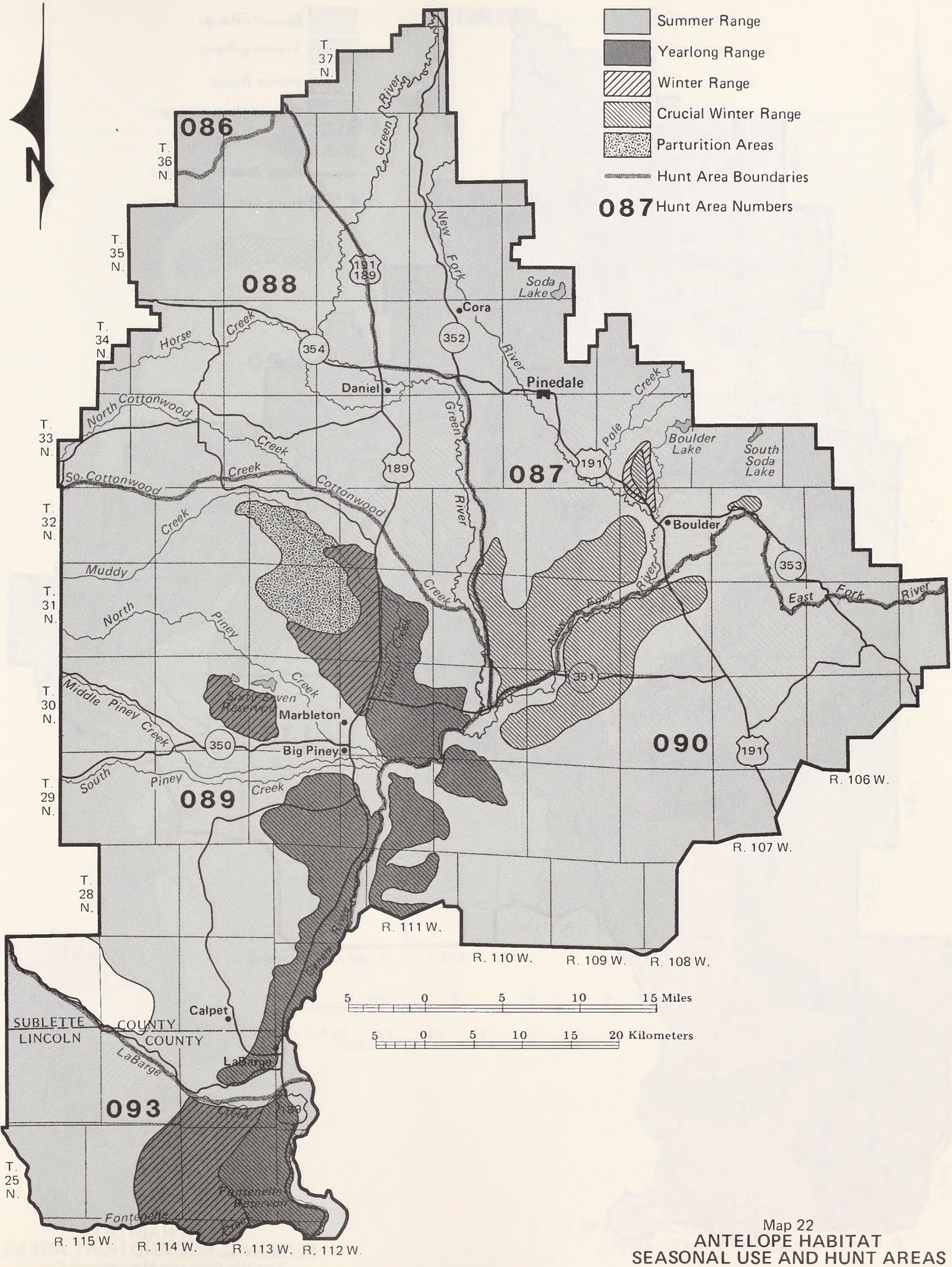
Animal condition in late fall is a primary factor of winter survival. Those animals with adequate energy (fat) reserves are in a more favorable position to survive the winter. Even with available sagebrush, these deer are on a negative energy budget from the start of cold weather until spring. This becomes apparent during long cold winters when heavy mortality occurs.

Lands administered by the BLM provide over 100,000 acres of high quality summer habitat. This area includes the foothill aspen/conifer complex found on the east slope of the Wyoming Range.

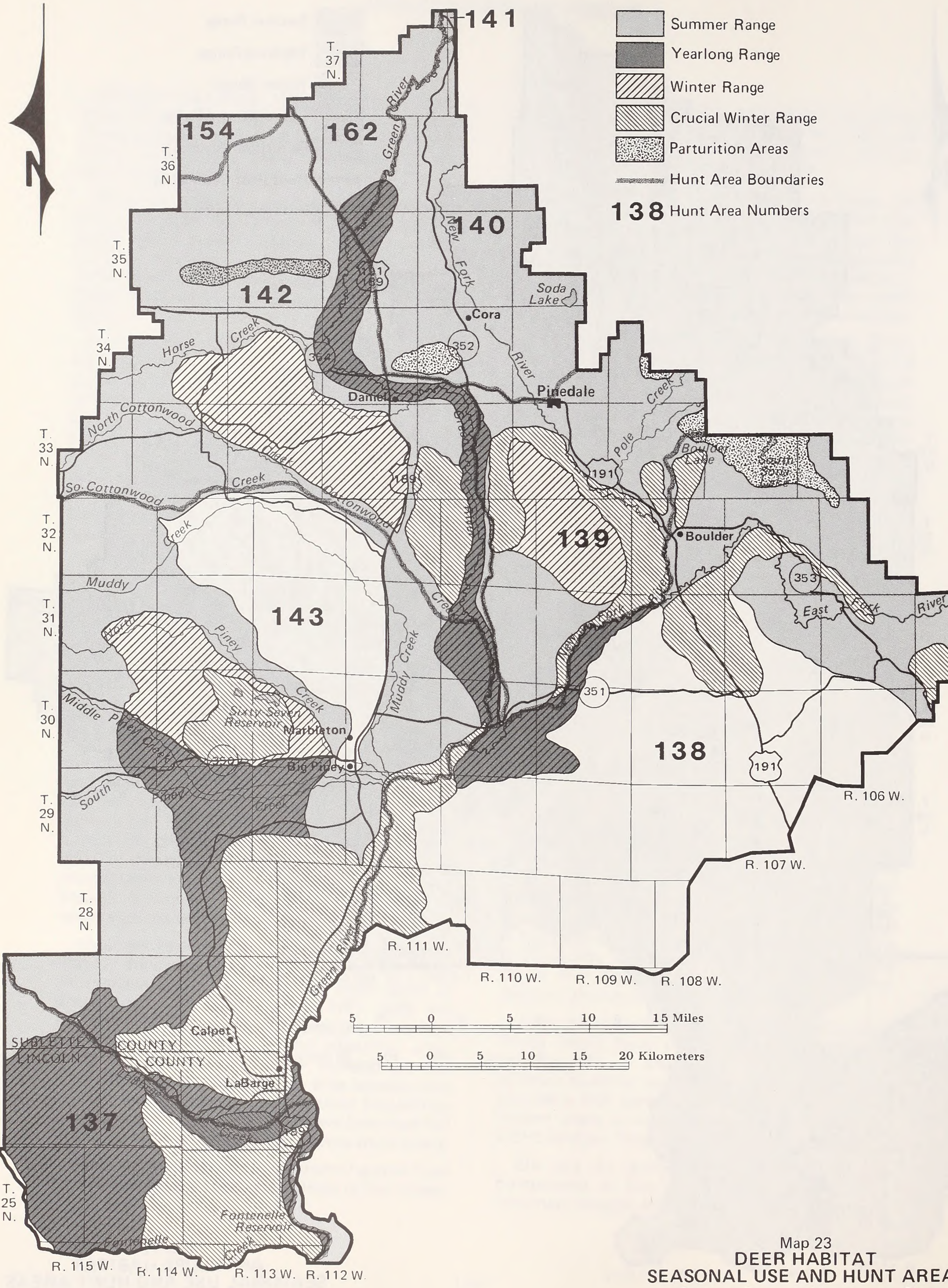
Elk seasonal use and hunt areas are shown on Map 24. Elk within the planning area are managed in a unique manner. Ten supplemental feedgrounds were established on public land because natural winter range is extremely limited, except in the southwest portion of the planning area. The feedgrounds are administered by the Wyoming Game and Fish Department through a memorandum of understanding with the BLM.

Elk in the Miller Mountain-Fort Hill and Deadline Ridge areas have not required supplemental feeding due to abundant natural forage. In addition to winter range, BLM-administered lands provide a high percentage of calving habitat and limited areas of summer range adjacent to the USFS Bridger-Teton National Forest boundary.

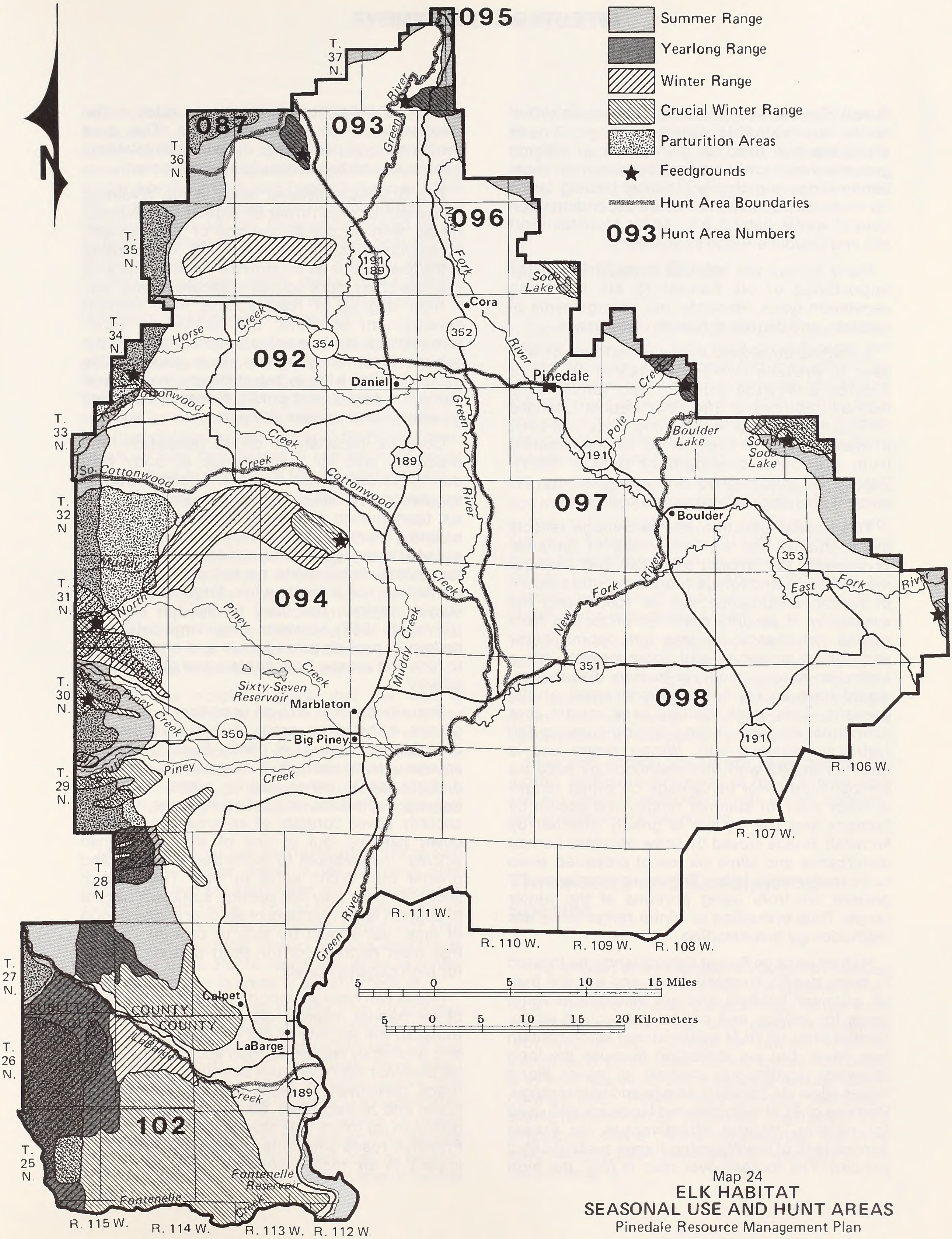
Elk are an extremely important wildlife component in the Wyoming and Wind River mountain ranges. Higher elevations, primarily on



Map 22
ANTELOPE HABITAT
SEASONAL USE AND HUNT AREAS
Pinedale Resource Management Plan



Map 23
DEER HABITAT
SEASONAL USE AND HUNT AREA
Pinedale Resource Management Plan



Map 24
ELK HABITAT
SEASONAL USE AND HUNT AREAS
Pinedale Resource Management Plan

Forest Service and adjacent BLM-administered lands, are valuable summer range. Lower elevations are used as parturition or calving grounds. Areas lower are used as wintering range. Winter range is probably the most limiting factor for those elk populations that are dependent upon natural winter habitat (i.e., Miller Mountain-Fort Hill and Deadline Ridge populations).

Many factors are involved in determining the importance of elk habitat to elk including vegetation types, amounts and arrangements of habitats, and degree of human disturbance.

A method developed by the Forest Service was used to evaluate existing elk habitat on Forest Service and BLM-administered lands. This method, "Estimating Effects of Habitat Changes on Potential Elk Use in Wyoming," was also used in evaluating the changes in elk habitat resulting from proposed development (USDA 1981). Results of this method are expressed as the percent elk habitat effectiveness of an area.

This habitat effectiveness percentage reflects the estimated use elk may make of an area, considering the amount (acreage) and arrangement of cover and forage (noncover), the amount of human disturbance due to roads, and the availability of security cover for protection from human disturbance. An area with optimal cover and forage acreages and arrangements for a particular season, and no human disturbance, would have an elk habitat effectiveness of 100 percent. This methodology is a model that estimates elk use during spring-summer-fall (primarily summer-fall). Winter range use is underestimated with this methodology because the optimum cover percentage on winter ranges is lower than for summer ranges and access by humans and use by elk is greatly affected by snowfall. Roads closed by snow decrease human disturbance and allow elk use of protected areas to increase, while heavy snows may occasionally prevent elk from using portions of the winter range. Thus evaluation of winter range using this methodology is misleading.

Habitat units on Forest Service lands are located in more heavily forested areas and are the best elk summer habitats and are valuable in some areas for calving and critical year-round range. Habitat units on BLM-administered lands contain less cover, but are important because the long stringers (continuous strands) of cover along ridges allow elk access to forage and winter range. Portions of BLM-administered lands are also used for calving. Habitat effectiveness for Forest Service land of the Wyoming Range averages 65.2 percent. The forage/cover ratio is 53/47; the high amount of cover contributes to the value of the area as good elk summer habitat. This area contains a high percentage of cover, has relatively few roads, and has access to security cover.

The BLM-administered lands in the Wyoming Range exhibit much lower elk habitat effectiveness values, with an overall average of 12.9 percent. Forage/cover ratios average 75/25, contributing to the lower value as elk summer habitat. The area has little cover, poor access to security cover, and a high degree of road access from current development activities. Elk habitat on BLM-administered lands is valuable to elk despite the habitat effectiveness values. It is good quality winter habitat with forest stringers that extend along the ridges, and public access is restricted by private land owners at the base.

Cover is important to elk as protection from predators and for maintenance of body heat during severe winter weather. Hiding cover is vegetation that will screen 90 percent of an adult elk from human view at a distance of 200 feet or less (Thomas, et al. 1979). A canopy closure over 40 percent generally provides sufficient cover for an elk. Small areas do not provide enough protection for a herd, while larger areas have interior regions not used to the full potential (Reynolds 1966). However, these large patches of timber do provide areas for elk and other wildlife to hide and escape from hunters and other human activity.

Security cover is also an important component of elk habitat in areas subject to human disturbance (Peek, et al. 1982). Security cover is an area used temporarily during periods of human disturbance in other nearby areas, including logging operations or hunting seasons. Optimal security cover consists of an area of individual cover patches, out of line of sight of human activity, inaccessible to motorized vehicles, and greater than 5,000 acres in size. The area of security cover may not provide sufficient habitat to support large numbers of elk over a long period of time, but should be able to provide an area free from harassment for short periods of time for high densities of elk.

Roads can have an important effect on the value of elk habitat. Human disturbance is a serious threat to the stability of the elk herd in this area, and is directly related to road access. Studies of elk behavior near roads indicate that elk may avoid roads, particularly in areas with little or no cover (Lyon and Jensen 1980). Elk use may be less than optimum up to 0.9 mile from a road (Lyon 1979). Primitive roads with little traffic have less of an impact to elk than secondary roads with more traffic (Thomas, et al. 1979) (USDI/USDA 1983c). Because of the lower amount of cover on BLM-administered lands, this area is particularly sensitive to human disturbance, especially during winter months and during hunting seasons when elk may be at these lower elevations. The distribution of elk on BLM-administered lands reflects the effect of roads on elk. Best populations of elk on these areas are where the least amount of improved gravel roads occur (Rock Creek/ Graphite Hollow, Riley Ridge to Pine Grove, North Mountain, and Finnegan Mountain).

The construction of numerous roads, well pads, and pipelines have occurred in the Wyoming Range from LaBarge Creek north to Little Cottonwood Creek. During construction, this has resulted in temporary increased human activity and loss of some conifer cover in timbered areas, which in turn has caused a reduction of cover integrity and a lowering of habitat effectiveness.

Over the last 25 to 30 years, 1,865 acres of conifer have been harvested or burned. An additional 77 acres have been removed for road and well pad construction. This disturbed acreage amounts to 1,942 acres of potential conifer that does not currently qualify as elk cover. This acreage represents the direct loss of cover resulting from human activities, but does not account for the indirect reduction of habitat effectiveness described previously.

All of the indices suggest that the area is approaching the acceptability threshold for continued elk use. Given the existing conditions, future cover reduction or increased human activity would likely result in decreases in affected elk populations through lowered animal productivity or possible long-term abandonment of impacted areas.

Moose seasonal use and hunt areas are shown on Map 25. Moose reside in the planning area year-round and are associated with riparian areas and adjacent lands. To minimize damage to agricultural lands, the Wyoming Game and Fish Department conducts limited feeding operations on private lands. Public lands also provide winter cover and forage in areas of suitable habitat.

Disturbance to wildlife habitat from oil and gas development has been concentrated in the southwestern portion of the planning area. Oil and gas wells, roads, and pipelines have been developed at relatively high densities within this area. To date, 2,235 acres of public land associated with producing wells and 8,332 acres of public land lost to roads are out of production, for wildlife habitat. In addition to the direct loss of habitat, many additional acres have suffered loss of habitat effectiveness in this area.

The most disturbance has occurred in mule deer, pronghorn antelope, and elk crucial winter range in hunt areas 143, 89, and 94, respectively. More recent wells have begun to affect the higher areas including elk spring, summer, and fall habitat.

Upland Game Birds

Sage grouse and forest grouse are the principal upland game birds, with sage grouse being the most numerous and widespread throughout the planning area. Habitat status for sage grouse and forest grouse is shown on Table 30. Known sage grouse strutting grounds (leks), and nesting areas are shown on Map 26. Other leks probably exist, but have not been identified.

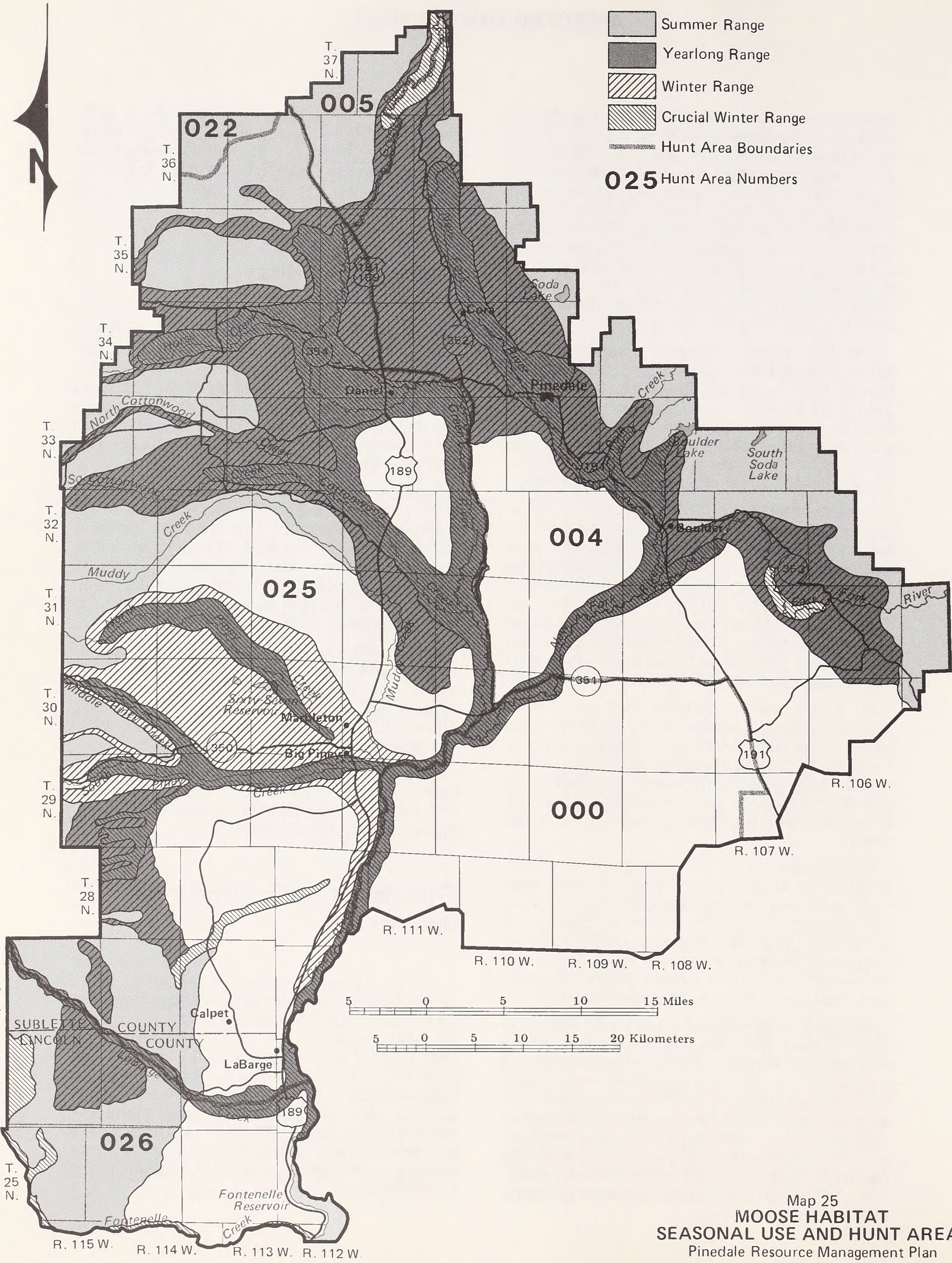
Strutting grounds are the key sage grouse activity areas. Most sage grouse nests occur within a two-mile radius of the strutting ground. Optimum habitat contains 20 to 30 percent canopy cover of sagebrush, with an average height of 16 inches to provide cover and camouflage for nesting birds. Strutting activity usually begins in March and peaks during May.

Water becomes especially important in late summer and fall as plants mature. Availability of water has been greatly improved by the development of reservoirs, wells, and springs. There are still areas where additional water development would prove beneficial.

Blue and ruffed grouse are restricted to the foothill and mountain areas of the planning area and are found in association with aspen, conifers, and streamcourse vegetation.

Threatened and Endangered Species

The present and proposed endangered species list for the Pinedale Resource Management Plan (U.S. Fish and Wildlife Service letter dated April 10, 1985) includes the bald eagle (Haliaeetus leucocephalus); peregrine falcon (Falcon peregrinus); grizzly bear (Ursus arctos horribilis); grey wolf (Canis lupus); a fish, the Kendall Warm Springs dace (Rhinichthys osculus thermalis); black-footed ferret (Mustela nigripes); and whooping crane (Grus americana). No new species have been proposed for addition to the list at this time.



Map 25
MOOSE HABITAT
SEASONAL USE AND HUNT AREA
Pinedale Resource Management Plan

TABLE 30

TERRESTRIAL WILDLIFE HABITAT STATUS (Birds)

	Spring Summer Fall	Yearlong			Crucial Winter				Crucial Breeding Areas[1]				Production Areas			Concentration Areas			Total Habitat[2]
Terrestrial Species (Birds)	Acres Public Land[3]	Acres Public Land	Quantity[4]	Quality[5]	Acres Public Land	Quantity	Quality	Percentage Public Land[6]	Acres Public Land	Quantity	Quality	Percentage Public Land	Acres Public Land	Quantity	Quality	Acres Public Land	Quantity	Quality	Acres Public Land
Sage Grouse	[7]	[7]	—	—	76,200	S	G	91	146,695	S	F	76	—	—	—	—	—	—	778,000
Forest Grouse (blue & ruffed)	—	117,000	D	G	—	—	—	—	—	—	—	—	—	—	—	—	—	—	117,000
Waterfowl		—	—	—	—	—	—	—	—	—	—	—	1,865	D	F	1,851	D	F	4,351

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[1] Includes strutting grounds and associated breeding complex within 1 ½ mile radius.

[2] Total habitat includes acreage of all sagebrush types within planning unit for sage grouse; and conifer, aspen, and sagebrush interspersions for forest grouse.

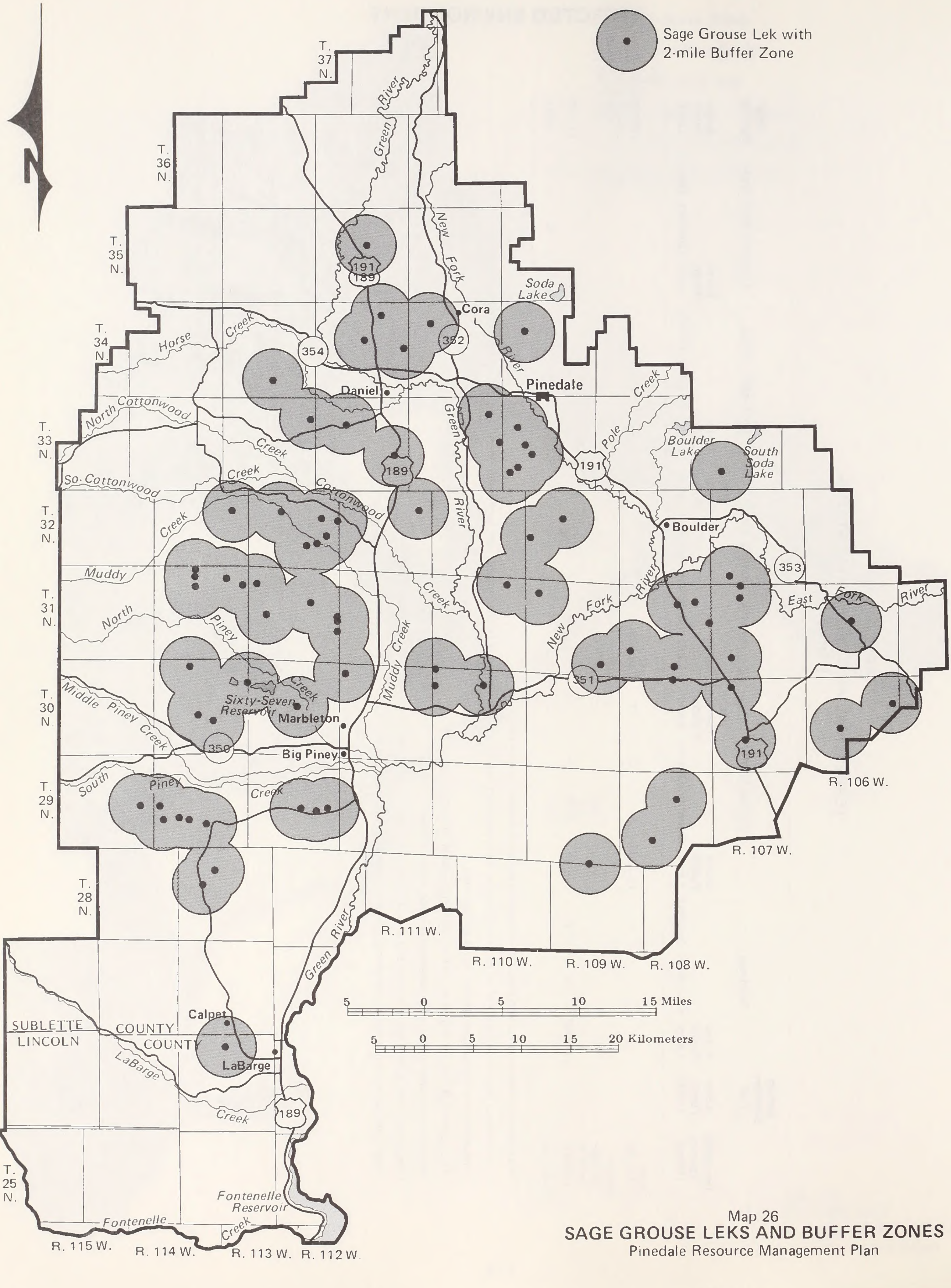
[3] Includes acres of public land within the planning unit.

[4] Represents habitat quantity, rated as I-increasing; S-stable; D-decreasing.

[5] Represents habitat quality as E-excellent; G-good; F-fair; P-poor.

[6] Represents the percentage of public land and of a particular species' seasonal range within the planning unit.

[7] Due to the widespread distribution of this species, these seasonal use areas are included in total habitat.



Map 26

SAGE GROUSE LEKS AND BUFFER ZONES

Pinedale Resource Management Plan

Bald eagle use within the area is primarily by migrant and wintering bald birds. Eagles generally occur in the area during October through May. The primary winter concentration area runs from the confluence of the New Fork and Green Rivers to the Fontenelle Reservoir. Other portions of the Green River, New Fork River, East Fork River, and their tributaries have been utilized by wintering eagles, although in fewer numbers.

Cottonwood trees along the rivers provide roost sites during the winter and are used as perch sites near foraging areas of open water before freeze up in late fall and after the ice break up in early spring. During the freezing conditions of mid-winter, eagles change from a prey base of fish and waterfowl to forage primarily upon road kill, winter kill, and other carrion.

Since 1983, a pair of bald eagles have attempted to nest in cottonwoods along the Green River south of Big Piney. Thus far these attempts have been unsuccessful. A successful nest was established in 1986 on the Green River near Daniel. At least one young eagle fledged off this nest, according to the land owner. This is the first successful bald eagle nest on the Green River that has been recorded since the 1940s.

Peregrine falcons use the Green River as a spring and fall migration corridor; however, there are no known breeding pairs of the peregrine within the area (R. Oakleaf, 1985 personal communication). Recent observations are limited to occasional sightings of migrant birds near Big Piney (B. Johnson, 1986 personal communication).

Efforts are being made to reestablish peregrine falcons in Teton and Yellowstone National Parks. If successful, this recovery effort may increase the probability of spring-fall migrant use along the Green River. An inventory of cliffs in the planning area is underway to determine nesting potential for peregrine falcons and other raptors.

There is currently no documented evidence to indicate that the grey wolf or grizzly bear occur within the planning area.

The entire population of Kendall Warm Springs Dace is contained in Kendall Springs, T. 38 N., R. 110 W., Section 2 (Wyoming Game and Fish Department 1977). The planning area is south and downstream of this location.

Historically, the geographic range of the black-footed ferret included most of the Great Plains grassland as well as the semiarid grasslands and sagebrush steppes of the Intermountain west (Hall and Kelson 1959; Hillman and Clark 1980). Key habitat is determined by the abundance and distribution of prairie dogs, its main prey (Hillman and Clark 1980). At present, no documented evidence is available to verify the presence of this species in the planning area. The only known active ferret population in Wyoming was discovered in 1981 near Meeteetse. Since 1970, ten probable or positive sightings of black-footed ferrets have been reported in the planning area (1985 Wyoming Game and Fish Department memorandum). There is a reasonable likelihood that ferrets could occur in the area.

Potential habitat is available in the white-tailed prairie dog towns found throughout the lower benches and drainages. Prairie dog distribution is partially mapped. Inventory and mapping of prairie dog distribution is continuing in the planning area.

Habitats used by whooping crane include riparian areas consisting of grasses, sedges, and willows found in irrigated and natural wet meadows. The majority of use to date has been on private lands.

The present occurrence of whooping cranes is due to the cross-foster parent program initiated in 1974 at the Grays Lake National Wildlife Refuge, Idaho. This is an attempt to establish a second wild population of whooping cranes. Whooping crane eggs are placed in greater sandhill crane nests to be hatched and reared by the sandhill crane foster parents. The whooping cranes have adopted the migration routes of the sandhills and migrate through, summering in southwest Wyoming (Lockman, 1985 personal communication).

The program has been successful in that the Grays Lake population has increased to over 30 birds. Whooping cranes use the Upper Green River drainages from April to October.

The BLM is currently cooperating with the Wyoming Game and Fish Department in a monitoring effort to determine whooping crane distribution and crucial habitat. Current cooperation between BLM, Wyoming Game and Fish, and U.S. Fish and Wildlife Service at Grays Lake Refuge in trapping and transplanting cranes to promote nesting and pair-bonding should help recovery efforts for this species.

Other Species

A variety of small birds and mammals, fish, and waterfowl are present in the planning area. Over 300 miles of streams flow through the public lands, originating in the Wyoming and Wind River ranges. These streams, as well as lakes and riparian zones, provide habitat on public land.

The east front of the Wyoming Range is drained by numerous small beaver-populated streams which provide limited habitat areas for remnant populations of Colorado River cutthroat trout. This species is the only native trout to Wyoming's Green River drainage, and is currently designated as a sensitive species by the BLM and the Wyoming Game and Fish Department. The Colorado River cutthroat trout is currently designated by the U.S. Fish and Wildlife Service as a Category 2 species. This designation identifies the need for more study of a species to determine if formal listing on the Federal Threatened and Endangered List is necessary. Two creeks on BLM-administered lands provide habitat for genetically pure populations of this fish.

Historically, duck and goose populations have been composed mostly of migrants, some of which use waters in the planning area for nesting as well as for resting and feeding. The cold winters freeze the water, making it unavailable. Those areas in the more southerly portion of the area thaw earlier and are used first in the season. The Wyoming Game and Fish Department maintains that the lack of nesting habitats for ducks and geese is a limiting factor. During the past as well as the present, available habitat is fully exploited. During years of higher runoff and subsequent larger surface water acreage, the number of ducks and geese in the area is characteristically greater.

The Green River has received the major populations of nesting geese and ducks. The Green River's tributaries, particularly the New Fork Potholes in the northern portion of the area, also have significant populations of nesting ducks.

The New Fork Potholes area is a collection of 100 to 150 glacial potholes lying between the Marsh Creek and New Fork River drainages, mostly just west of the Bridger-Teton National Forest boundary. Seventy of these potholes are on public land. This area is extremely attractive to a wide variety of puddle ducks, diving ducks, and shorebirds, as well as to coots, grebes, and, occasionally, geese. In 1970, a uranium exploration crew hit an artesian well in the area, which is still flowing a large amount of water. The flowing water traveled through several of the small potholes, enlarging several into one larger lake. This lake has become a favored resting lake.

A standing water inventory was conducted on 268,000 acres of public land during the summers of 1978 and 1979. A total of 201 ponds, reservoirs, and small lakes were inventoried. These waters provide a total of 150 surface acres, with individual ponds and reservoirs ranging from less than one acre to 10.2 acres. The majority were less than one acre in size. A large percentage of these small waters afford some seasonal waterfowl use (USDI 1985b).

Riparian Habitat

Riparian habitat condition was rated during a 1977 stream survey. Results indicated that 15 percent of the habitat was in the "good" condition class, 50 percent in the "fair" class, 35 percent in the "poor" class. The survey results were applied to 7,138 acres identified as riparian habitat.

Livestock grazing probably has the greatest impact on riparian habitat of all land uses occurring in the planning area. Forage production and water availability provided by riparian zones, topography, and the grazing habits of livestock all contribute to heavy grazing use of this productive zone. Excessive livestock use results in reduced or lost vegetative cover, soil compaction, accelerated stream bank erosion, reduced channel stability, sediment loading, and modification of beaver-associated succession. All of these factors combined reduce the productivity and stability of this habitat type.

LIVESTOCK GRAZING

The Pinedale Resource Area has 206 grazing allotments permitted for grazing under Section 3 of the Taylor Grazing Act in which 125 permittees are permitted to graze livestock. The number of permittees and grazing capacities by allotment are shown in Appendix D-9. The current land ownership by allotment is shown in Appendix D-7. The allotments have 909,593 acres of public land with 107,907 AUMs permitted for grazing. Livestock use is by cattle (97 percent), horses (2.9 percent), and sheep (0.1 percent).

All allotments have been proposed for categorization into one of three selective management categories (improve, maintain, and custodial) in accordance with the BLM Grazing Management Policy. This process includes placing the allotments in one of three categories, setting priorities for making range improvements, and providing direction for other management actions which leads to the development of alternatives to the present range management guidance. Appendix D-1 explains the categorization process. Appendix D-10 summarizes the problems identified in each "I" Category Allotment.

A limited amount of forage would be lost to the roads and camp sites in the developed recreation sites.

Eleven allotment management plans (AMP) are implemented on the planning area. Appendix D-5 shows the type of grazing system in each allotment.

Both wild horse herds are within allotments with existing AMPs. These allotments are therefore managed by a grazing system which allows for rest and regrowth in specified areas each year. A problem arises with the horses in these areas in that they concentrate in the areas that are being rested therefore not allowing the vegetation to recover in vigor and establish seedlings. The wild horses in the Desert Common area are managed in the South Desert Pasture according to the wild horse management plan, but they have moved into the adjoining Alkali Pasture and Reardon Canyon Allotment (2073) causing competition for forage and water in those areas also. Incidental use is occurring in the Sand Draw and Blue Rim pastures, not creating too much competition between livestock and wild horses. The cost of maintaining and supplying water for the wild horses is the burden of the permittees except for two wells maintained by the BLM. This is causing problems and conflicts in dealing with the permittees on maintenance of the range improvements.

WILD HORSES

Desert Herd Management Area

The Desert wild horse herd management area (HMA) is located in the southern part of the planning area and includes both the Desert Common and Reardon Canyon Common Allotments. The habitat in the Desert HMA is a combination of rolling sagebrush hills, flat saline drainages, rugged canyons, and flat-topped mesas. The Desert Common Allotment consists of 128,778 acres of public land; 4,800 acres of state land; and 1,640 acres of private land. The Reardon Canyon Common Allotment contains 21,650 acres of public land; 1,280 acres of state land; and 1,000 acres of private land.

A 1971 inventory counted approximately 110 horses in the Desert HMA, while the most recent inventory counted 50 horses. The greatest number of horses, 334, was recorded in 1975 (Map 14).

The current Desert Common AMP utilizes a four-pasture, deferred-grazing system, with a six-week grazing season from May 1 through June 15. Cattle are the only domestic livestock using this allotment which includes the South Desert, Alkali Draw, Sand Draw, and Blue Rim pastures.

While many water sources have been developed in the allotment to ensure proper distribution of cattle, wild horses also use these waters throughout the grazing season. Although 20 wells and numerous reservoirs are scattered throughout the allotment, the reservoirs may run dry in drought years, forcing the horses to be more dependent on the wells. The livestock permittee is responsible for maintenance of the water developments. At the end of the six week grazing season, the permittee turns off 16 of the wells, leaving four wells for use by the horses.

The South Desert-Figure Four Interim Wild Free-Roaming Horse Herd Management Plan, implemented in 1982 as a joint effort between the Pinedale and Green River Resource Areas, allowed for 25 wild horses in the South Desert Pasture (no forage allocated) and 75 wild horses in the Figure Four Allotment (forage allocated) (in the Green River Resource Area). Because of forage conditions, water availability, and nearness of winter range, nearly all the wild horses inhabit the South Desert Pasture and the adjoining Reardon Canyon Allotment (in the Pinedale Resource Area) leaving virtually no wild horses in the Figure Four Allotment (in the Green River Resource Area).

Forage conditions preferable to wild horses have been created in the South Desert Pasture due to a past sagebrush spraying project and repeated nonuse by livestock permittees. Since two of the nine wells in this pasture are turned off at the end of the grazing season, wild horses disperse to Alkali Draw Pasture (or the other pastures in this allotment), where water may be available from the reservoirs. Winter forage on the ridge tops and south exposures of the Reardon Canyon Allotment and the Alkali Draw Pasture also attract horses.

Since the Desert Herd Management Area is in a remote part of the Little Colorado Desert and rarely receives much casual traffic, the wild horses of this region are not highly visible.

At present, these is limited opportunity for vegetation treatments in this area to create additional forage.

LaBarge Herd Management Area

The LaBarge wild horse Herd Management Area is located within the North LaBarge Common Allotment which is in the southwestern part of the planning area, between the towns of Big Piney and LaBarge and west of Highway 189. The habitat in this Herd Management Area varies from flat saline drainages, rolling sagebrush hills, deep rugged canyons, and flat-topped mesas. Within the North LaBarge Common Allotment, there are 154,800 acres of public land; 17,320 acres of state land; and 34,990 acres of private land.

The allotment utilizes an AMP consisting of rest-rotation grazing on eight pastures.

Intensive oil and gas development is currently underway in this region and has resulted in increased construction, traffic, and surface disturbance.

Intermingled throughout and adjacent to the LaBarge Herd Management Area are private lands, used primarily for hay production and to pasture livestock.

The portion of North LaBarge Common Allotment designated for wild horses is that south of Dry Piney Creek to LaBarge Creek and west of Highway 189 to the Hogsback and Cretaceous Mountain.

Cattle grazing occurs in spring, summer, and fall and adequate water is available for wild horse consumption. Wild horses graze throughout the allotment, including the pastures which are scheduled to receive the rest treatment prescribed in the allotment management plan. Whereas the wild horses generally stay in the designated Herd Management Area as far as the western boundary is concerned, they do migrate north of Dry Piney Creek and congregate in the vicinity of the Calpet Road. Occasionally the private lands in and adjacent to the allotment attract wild horses, either because high quality pasture is available or because a landowner is pasturing domestic horses. This proximity to the Calpet Road and private lands has led to several incidents and complaints regarding traffic hazards and property damage (USDI 1985b).

The LaBarge Herd Management Plan exists in a part of the county that receives a lot of traffic, both on Highway 189 and numerous roads within the LaBarge oil field. Because of this situation the wild horses in this area are highly visible.

FORESTRY

The planning area contains approximately 31,590 commercial conifer acres and an additional 15,280 woodland acres for a total forest acreage of 46,870 (Map F). Commercial conifer are those acres of conifer species capable of sustaining lumber and other forest product production and for which there is a commercial/economical demand. It includes the following species or species groups: lodgepole pine, Douglas-fir, and the Engelmann spruce-subalpine fir group and also includes nonstocked stands that have or are capable of supporting one or more of the commercial conifer species. The primary woodland species are aspen and limber pine. Table 31 shows acreage and volume distributions by species as well as an estimated retail lumber selling value. The acreages and volume figures in this table were derived from intensive forest inventory data collected from 1980 through 1983 using the Forest Service Stage II forest inventory method. Based on the inventory data, the planning area could sustain an annual unrestricted timber harvest of approximately 3.2 million board feet (mmbf) from the commercial conifer forest type. The 3.2 mmbf level is based strictly on timber harvest potential and does not consider other resource requirements and therefore was not considered implementable. Due to a general lack of demand for aspen and limber pine, woodland product harvest projections do not include those species.

Revenues generated in the entire processing area by this level of harvesting would include approximately $56,000 in direct receipts to the government; approximately $1,176,000 in retail lumber values; and nearly $550,000 in income (employee payroll from both the logging/milling industry and from support services). The employment level would be approximately 41 people (22 in the logging/milling industry and 19 in support services).

The unrestricted harvest projection is not considered an implementable alternative because it would place primary emphasis on timber production from all forested acres within the planning area and would not make any allocations for other resource values such as wildlife, watershed, riparian zones, and recreation. Consequently, it would not be consistent with NEPA, FLPMA, and Bureau policies. It is included here and also in the impact section as a constant to measure all other alternatives and associated impacts against.

TABLE 31

NET VOLUME AND ACREAGE TABULATION BY TIMBER TYPE

Timber Type and Size Class	Acres	Net Cubic Foot Volume[1] (per acre)	Total Net Cubic Foot Volume	Total Volume[2] (board feet)	Estimated Retail Selling Value[3] (dollars)
Commercial Conifer					
Lodgepole Pine					
Saw Timber Stands	7,187	2,305	16,566,035	74,547,158	14,073,758
Poletimber Stands	2,711	1,788	4,847,268	21,812,706	4,118,021
Seedling/Sapling Stands	438	578	253,164	1,139,238	215,077
Douglas-fir					
Sawtimber Stands	11,015	1,946	21,435,190	96,458,355	19,832,802
Poletimber Stands	1,620	1,479	2,395,980	10,781,910	2,216,869
Spruce-fir					
Sawtimber Stands	6,974	2,650	18,481,100	83,164,950	15,700,711
Poletimber Stands	655	1,319	863,945	3,887,752	733,969
Seedling/Sapling Stands	158	242	38,236	172,062	32,484
Nonstocked Stands	832	260	216,320	933,440	183,776
Woodland					
Aspen					
All Classes	15,198	955	14,514,090	15,729,930[4]	2,969,653
Limber/White Bark Pine					
All Classes	82	NA	NA	NA	NA
Total	**46,870**	**1,699**	**79,611,328**	**308,667,501**	**$60,077,120**

Note: NA - data not available.

[1] Both live and dead volume (approximately 10 percent is sound dead material).

[2] One cubic foot equals 4.5 board feet. Also note the woodland type reflects only commercial conifer volume presently growing in aspen (woodland) stands.

[3] The estimated retail selling value is based on the U.S. Forest Service Region 4 base lumber selling value of $188.79/mbf for white woods (lodgepole pine, Engelmann spruce and subalpine fir) and $205.61/mbf for Douglas-fir. These figures were derived for Amendment 342 of the Region 4 Timber Approval Handbook dated November 1985. The retail selling value reflects the dollar amount that would be received by retail outlets if all of the commercial timber in the Pinedale Resource Area was converted to lumber and sold on "today's" market.

[4] This figure reflects only commercial conifer volume presently growing in aspen (woodland) stands.

Much of the forest acreage is concentrated along the northern, eastern, and western boundaries of the planning area and occurs as narrow, stringer-like stands on north and east slopes that originate from larger blocks of timber at higher elevation on Forest Service lands. For the purpose of analysis, the area has been divided into four individual management units.

The Deadline-Pinegrove Unit lies between South Piney Creek and LaBarge Creek and includes the Graphite elk winter range, the Riley Ridge elk winter range and the Rock Creek ACEC. The unit contains approximately 13,448 conifer and 3,510 woodland acres of which 1,322 conifer and 180 woodland acres are in the Rock Creek drainage, 2,117 conifer and 840 woodland acres are in the Graphite winter and 1,028 conifer and 153 woodland acres are in the Riley Ridge winter range. In addition to the forest resource, the Deadline-Pinegrove unit provides spring, fall and winter habitat for 400 to 600 elk, receives approximately 90 percent of the planning area's oil and gas development in forested areas, and contains a pure strain of Colorado River cutthroat trout in the Rock Creek drainage and a nearly pure strain in the Beaver Creek drainage.

The North Piney Unit lies between the Maki Creek drainage and South Piney Creek and includes two elk feedgrounds, Finnegan and North Piney. The unit contains approximately 5,158 acres of commercial conifer and 4,451 woodland acres, of which 708 conifer and 354 woodland acres are in the feedgrounds. In conjunction with state, private, and U.S. Forest Service lands, the North Piney unit provides yearlong habitat for up to 1,500 elk; however, most use on BLM-administered public land occurs during the summer, fall, and winter months. The unit also contains approximately 10 percent of the planning area's oil and gas development in forested areas. Past management activities, timber harvesting, and oil and gas development as well as wildfires have removed conifer/wildlife cover from approximately 680 acres or roughly 15 percent of the conifer acreage.

The Miller Mountain unit lies between LaBarge Creek and Fontenelle Creek and includes the Fort Hill-Fontenelle elk winter range. The unit contains 8,191 forested acres (4,241 commercial conifer and 3,950 woodland) of which 277 conifer and 145 woodland acres are in the elk winter range.

In addition to the forest resource, the Miller Mountain unit provides yearlong habitat for 200 to 400 elk. Most of the winter use is confined to the elk winter range and spring, summer use occurs throughout the unit. Additional discussion of the elk winter range can be found in the Affected Environment. Forestry and wildlife are the predominant uses in the unit, however it also contains a moss rock sale area and some oil and gas exploration (three dry holes to date). Past management activities have removed conifer/wildlife cover from approximately 209 acres or roughly 5 percent of the conifer base.

The Eastside-Hoback unit consists of scattered parcels and blocks of forested land along the eastern and northern boundaries of the planning area. The unit contains the Scab Creek area and the Franz elk feedground. There are a total of 8,743 commercial conifer and 3,369 woodland acres within the unit. The Franz feedground has approximately 127 acres (75 conifer and 52 woodland). The Scab Creek area has 184 conifer and 271 woodland acres.

The Eastside-Hoback unit provides winter habitat for up to 800 elk of which roughly ¼ use the forested portions on a yearlong basis. Forestry, wildlife, and wilderness are the dominant uses; there has been no oil and gas development in the forested areas.

Forest conditions vary from young, healthy, relatively insect and disease free stands to those that are quite old with high levels of insect and disease activity and high mortality rates. In general, most stands in the planning area are starting to exhibit reduction in vigor and wood fiber production and increases in disease and insect susceptibility as well as mortality. Inventory data indicate that current mortality rates vary from zero volume loss in young seedling and sapling stands to 18.4 cubic feet per acre per year in the spruce-fir sawtimber stands. The average mortality rate for all stands is approximately 7.7 cubic feet per acre per year on total yearly loss level of nearly 1.64 million board feet (mmbf). Approximately 98 percent (1.61 mmbf) of the mortality is occurring in the commercial conifer. Primary insects or diseases include bark beetles, dwarf mistletoe, and several varieties of rusts.

The timber harvest and thinning projections for each alternative are based on the forested lands available in management Categories 1 and 2 (lands available for intensive forest management and lands available for restricted forest management). No harvesting is projected from forested lands in Categories 3 or 4.

All forested lands have been classified into one of the four management categories; however, several forested areas including the Rock Creek drainage and ACEC, the Scab Creek campground, the Beaver Creek drainage, riparian zones, elk winter ranges, and elk feedgrounds would be affected by the categorization/acreage allocations, which either restrict the use of specific practices or totally preclude forest management activities (refer to the description of the alternative). The following discussion lists the primary resource values resulting in the restrictions to the forest management program.

The Rock Creek drainage and ACEC contains 1,899 forested acres in both the commercial conifer and woodland forest types, of which 397 acres are outside the actual drainage. The significance of the Rock Creek area is that it harbors a relatively pure strain of Colorado River cutthroat trout, a state listed sensitive species.

The Scab Creek campground is a semi-developed campground constructed adjacent to the proposed Scab Creek proposed wilderness area. The identified campground area contains 30 forested acres.

The Beaver Creek drainage contains 1,655 acres in the two forest types and, like Rock Creek, supports a relatively pure strain of Colorado River cutthroat trout.

The riparian buffer areas include those forested acres within a specified distance of existing riparian zones. The buffers would be utilized to maintain shade over live water sources and as sediment filters from upslope sources. The width and acres in the buffer zone vary by alternative.

Three elk winter ranges provide crucial elk winter habitat. The Graphite winter range includes portions of Deadline Ridge, Lake Mountain, and all of the Rock Creek drainage. Excluding the forested acreage in the Rock Creek drainage, the Graphite winter range contains 2,957 forested acres (commercial conifer and woodland). The Riley Ridge winter range occupies portions of Riley and Reed ridges and contains 1,181 acres in both forest types. The 422 commercial conifer and woodland acres on Fort Hill provide the primary source of thermal cover in the Fort Hill-Fontenelle winter range.

In addition to the natural elk winter ranges, there are several elk feedgrounds within the planning area, of which the Finnegan, North Piney, and Franz will affect forest management potentials. Collectively, these three feedgrounds contain 783 commercial conifer and 406 woodland acres.

Tables 32 and 33 summarize the affected areas and classify them by management resource category, e.g., elk winter ranges and feedgrounds would be included in the wildlife category.

In addition to the specific areas that would be affected, oil and gas development is expected to annually remove approximately 15 acres of forest land from long-term production. Also, any land disposals involving forested lands would result in reduction in the acres available for forest management.

TABLE 32

SUMMARY OF COMMERCIAL CONIFER ACREAGE ALLOCATIONS

	Preferred Alternative	Alternative A	Alternative B	Alternative C
Category 1[1]	3,387	21,858	23,499	18,732
Category 2[2]				
Riparian	112	1,549	817	785
Wildlife	20,540	1,377	783	1,377
Recreation	184	184	184	184
Category 3[3]				
Wildlife	1,060	1,637	0	4,205
Recreation	17	17	17	17
Category 4[4]				
Wildlife	1,322	0	1,322	1,322
Total Acreage	**26,622**	**26,622**	**26,622**	**26,622**
Conifer Acres Available for Forest Management (Categories 1 & 2)	24,223	24,968	25,283	21,078
Conifer Acres Not Available for Forest Management[5] (Categories 3 & 4)	2,399	1,654	1,339	5,544

[1] Lands available for intensive management of forest products.

[2] Lands available for restricted management of forest products.

[3] Lands where the forest acreage would be managed to enhance other resources.

[4] Lands not available for management of forest products.

[5] Forested lands in Category 3 would be available for forest management when such management is deemed necessary to maintain the integrity of the resource being protected or to promote public safety.

TABLE 33

SUMMARY OF WOODLAND ACREAGE ALLOCATIONS

	Preferred Alternative	Alternative A	Alternative B	Alternative C
Category 1[1]	1,923	12,543	12,931	11,528
Category 2[2]				
Riparian	80	883	449	436
Wildlife	11,232	278	406	278
Recreation	271	271	271	271
Category 3[3]				
Wildlife	551	262	0	1,544
Recreation	13	13	13	13
Category 4[4]				
Wildlife	180	0	180	180
Total Acreage	**14,250**	**14,250**	**14,250**	**14,250**
Woodland Acres Available For Forest Management (Categories 1 & 2)	13,506	13,975	14,057	12,513
Woodland Acres Not Available For Forest Management (Categories 3 & 4)	744	275	193	1,737

[1] Lands available for intensive management of forest products

[2] Lands available for restricted management of forest products.

[3] Lands where the forest acreage would be managed to enhance other resources.

[4] Lands not available for the management of forest products.

WILDERNESS

There are two wilderness study areas (WSAs) in the planning area; Scab Creek and Lake Mountain (Map 27).

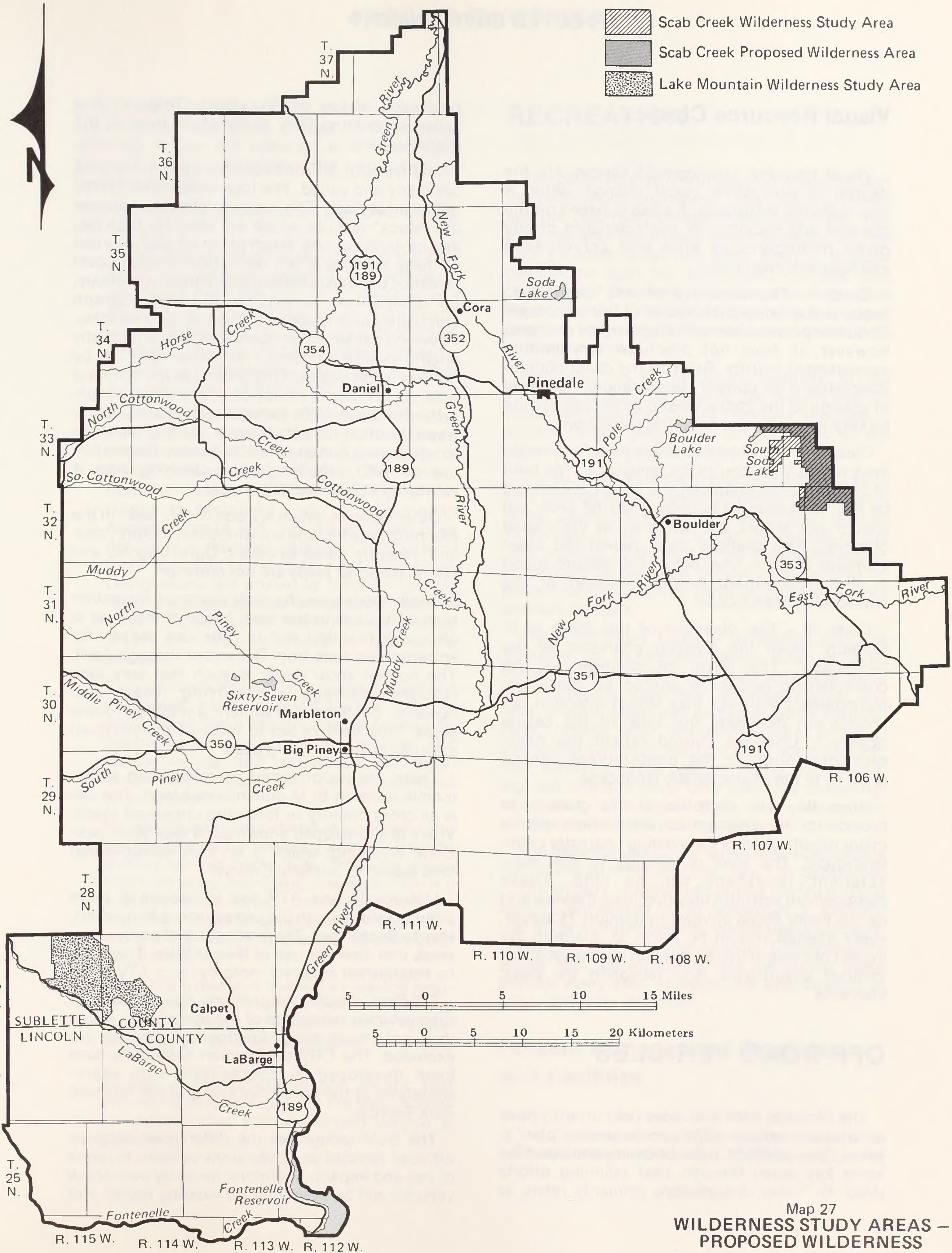
VISUAL RESOURCES

The entire planning area was inventoried and classified in 1978, using the BLM Visual Resource Management Classification System. In 1981, the 105,600 acre Riley Ridge Project area was evaluated in more detail and reclassified. Refer to the description in Alternative A for current classifications. The following three criteria were used to classify the entire RMP area into visual classes:

Scenery quality classes were developed for the planning area.

Sensitivity levels as determined by estimated use volumes for high travel routes in the scenery areas and use association (an estimate of user sensitivity to a given visual environment).

Visual zones for each traveled route that had a high or medium use volume were developed to identify the foreground, middle ground ,and background areas. Where foreground-middle ground areas overlapped the background area of another travel route, the foreground-middle ground classification took precedence. This was the case throughout the planning area resulting in the use of the foreground-middle ground classification throughout.



Map 27
WILDERNESS STUDY AREAS – PROPOSED WILDERNESS
Pinedale Resource Management Plan

Visual Resource Classes

Visual resource management classes are the degree of acceptable visual change within a characteristic landscape. A class is based on the physical and sociological characteristics of any given homogeneous area and serves as a management objective.

Class I - The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. Refer to the description in Alternative A for current classifications. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II - The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III - The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV - The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

OFF-ROAD VEHICLES

The Pinedale RMP area does not currently have an off-road vehicle (ORV) management plan in effect. Designations have been implemented for some key areas through past planning efforts (Map 4). These designations primarily relate to protection of key wildlife values. Table 17 is a listing of existing ORV designation areas in the planning area.

The types of off-road vehicles used in the area are many and varied. The four-wheel drive (4WD) is the most used. The majority of these vehicles are "stock" pickups which are used for both on- and off-highway use. Much of the off-highway use of these vehicles is not recreation related. Local ranchers use 4WDs extensively in their operations; oil companies, surveyors, and seismograph companies also make heavy use of 4WD vehicles. Firewood gathering is another use which is greatly adding to off-road travel. Four-wheel drive use by hunters is the biggest ORV impact in the planning area. As previously indicated, many of the people in the area have 4WDs for work related uses, winter travel, or other nonrecreational needs. This leads to use during hunting season as well. Recreation use of 4WD vehicles in the planning area is estimated at 5,100 visits per year.

Other vehicles which are commonly used in the planning area include snowmobiles, motorcycles, and, recently, three-wheelers. Dune buggies and the recreational jeeps are not common.

Snowmobiles are the most common recreation type ORV used in the area. Much of their use is also of a practical nature. The use season for snowmobiles runs from December through April. The normal snow depth is such that very little resource damage is occurring. There are, however, conflicts with wintering wildlife in some areas. This conflict led to most of the seasonal closures currently being used.

There are no groomed or established snowmobile trails on BLM-administered land. The use is all cross country or following unplowed roads. There is a developed snowmobile race track near Cora, Wyoming, which is on BLM-administered land leased to Sublette County.

Motorcycle and ATV use is becoming more popular even though the use season is fairly short, May to September. There are currently only a few areas that limit the use of these ORVs. There are no established areas for motorcycle or ATV use.

Off-road vehicle designations apply to all off-road vehicles regardless of the purpose for which they are being used. Emergency vehicles are excluded. The ORV designation definitions have been developed in cooperation with representatives of the Forest Service and the National Park Service.

The BLM recognizes the differences between off-road vehicles and over-snow vehicles in terms of use and impact. Therefore, travel by over-snow vehicles will be permitted off existing routes and in all open or limited areas (unless otherwise specifically limited or closed to over-snow vehicles) if they are operated in a responsible manner without damaging the vegetation or harming wildlife.

The three ORV designations are open, limited, and closed.

Open: Vehicle travel is permitted in the area (both on- and off-roads) if the vehicle is operated responsibly in a manner not causing, or unlikely to cause significant, undue damage to or disturbance of the soil, wildlife, wildlife habitat, improvements, cultural, or vegetative resources or other authorized uses of the public lands.

Limited: 1) A limited designation means vehicle travel is permitted only on roads and vehicle routes which were in existence prior to the date of designation in the Federal Register. Vehicle travel off existing vehicle routes is permitted only to accomplish necessary tasks and only if such travel does not result in resource damage. Or, 2) Vehicle travel is limited by number or type of vehicle. Designations are posted as follows: "Vehicle route is limited to four-wheel drive vehicles only," "Vehicle route limited to motorbikes only," or "Area is closed to over-snow vehicles."

Existing roads and vehicles routes are defined as routes existing prior to the date of designation, were constructed or created by the frequent passage of motor vehicles, and receive regular and continuous use. Additional vehicle routes may be authorized as need dictates.

Necessary tasks are defined as work requiring the use of a motor vehicle. Examples include picking up big game kills, repairing range improvements, managing livestock, mineral activities where surface disturbance does not total more than five acres as described in the "5-acre exemption" under the 43 CFR 3809 regulations, etc.

Resource damage is defined as leaving long-term signs of vehicle use (ruts) or causing erosion or water pollution, creating undue degradation of other vegetative or wildlife resources.

Closed: A closed designation means that vehicle travel is prohibited in the area. Access by means other than motorized vehicle is permitted.

RECREATION

The planning area lies in western Wyoming near the Yellowstone and Grand Teton National Parks, and the Teton and Bridger Wilderness areas. The planning area lies mostly within Sublette County. The Pinedale area has long been a popular destination spot for fishermen, hunters, and "wilderness" travelers on a national scale. The recent "boom" in southwest Wyoming has added pressure to the recreation resources at the local and regional level.

Recreation is an important segment of the economy of Sublette County, generating over $5 million of total area output revenues annually. A more detailed description can be found in the socioeconomics section.

The BLM-administered lands in Sublette County also provide an estimated 21 percent of the total visitor days in the county. Public lands provide 15 percent of the elk hunting, 32 percent of the deer hunting, 52 percent of the antelope hunting, 65 percent of the sage grouse hunting, and 16 percent of the camping. Table 34 provides a more detailed analysis.

There are many types of recreation activities available on BLM-administered lands. A brief listing includes stream and lake fishing; big game hunting for elk, mule deer, antelope, moose, and bear; grouse, waterfowl, and small game hunting; river rafting and canoeing; lake boating; swimming; camping; backpacking; horsepacking; rock climbing; cross country skiing; snowmobiling; dirt bike and other ORV use; rock collecting; sightseeing of historic trails and places; and wildlife and general photography.

The heaviest use of the developed sites occurs during the summer months, July 1 to September 1. The amount of winter use during the fall hunting season, September 10 to November 1, exceeds that of the summer season. Winter use is probably the fastest growing use season. Cross-country skiing and snowmobiling are becoming more popular every year; however, the total amount of use is still relatively small.

Present Management Practices and Facilities

The Pinedale area is a popular recreation area both nationally and locally. Both the amount of

TABLE 34

HUNTER/FISHERMAN DAYS ON BLM-ADMINISTERED LANDS

Species	Days	Visits	Visitor Hours[1]	Percent[2]
Antelope[3]	5,689	5,689	43,236	52
Deer[3]	14,685	14,685	111,606	32
Elk[3]	12,884	12,884	97,818	15
Moose[3]	169	169	1,284	11
Sage Grouse/Waterfowl[3]	4,404	4,404	33,470	65
Total	**37,831**	**37,831**	**287,414**	
Fish (trout)[4]				
Streams	7,904	7,904	45,843	16
Lakes/Reservoirs	3,027	3,027	17,556	3
Total	**10,931**	**10,931**	**63,399**	

[1] Average hunter visitor hours equals 7.6 per person per visit. Average fisher visitor hours equals 5.8 per person per visit.

[2] Percent of annual game and fish harvest attributable to BLM-administered days in the planning area.

[3] 1985 harvest data from Wyoming Game and Fish Department.

[4] 1977 harvest data from Wyoming Game and Fish Department.

use and the types of uses have been steadily increasing since the early 1970s. Most of the recreation uses in the planning area are of a dispersed type. Visitors participate in a wide variety of activities over a broad area and not necessarily at a specific location.

Recreation Opportunity Spectrum (ROS)

Public lands are managed to provide a broad spectrum of recreational opportunities in the Pinedale Resource Area. The BLM management objective provides a range of opportunities for recreational experiences now and in the future.

The ROS system provides the BLM with a framework for determining existing outdoor recreation opportunities and management potential, based upon a combination of three criteria: activity, setting, and experience.

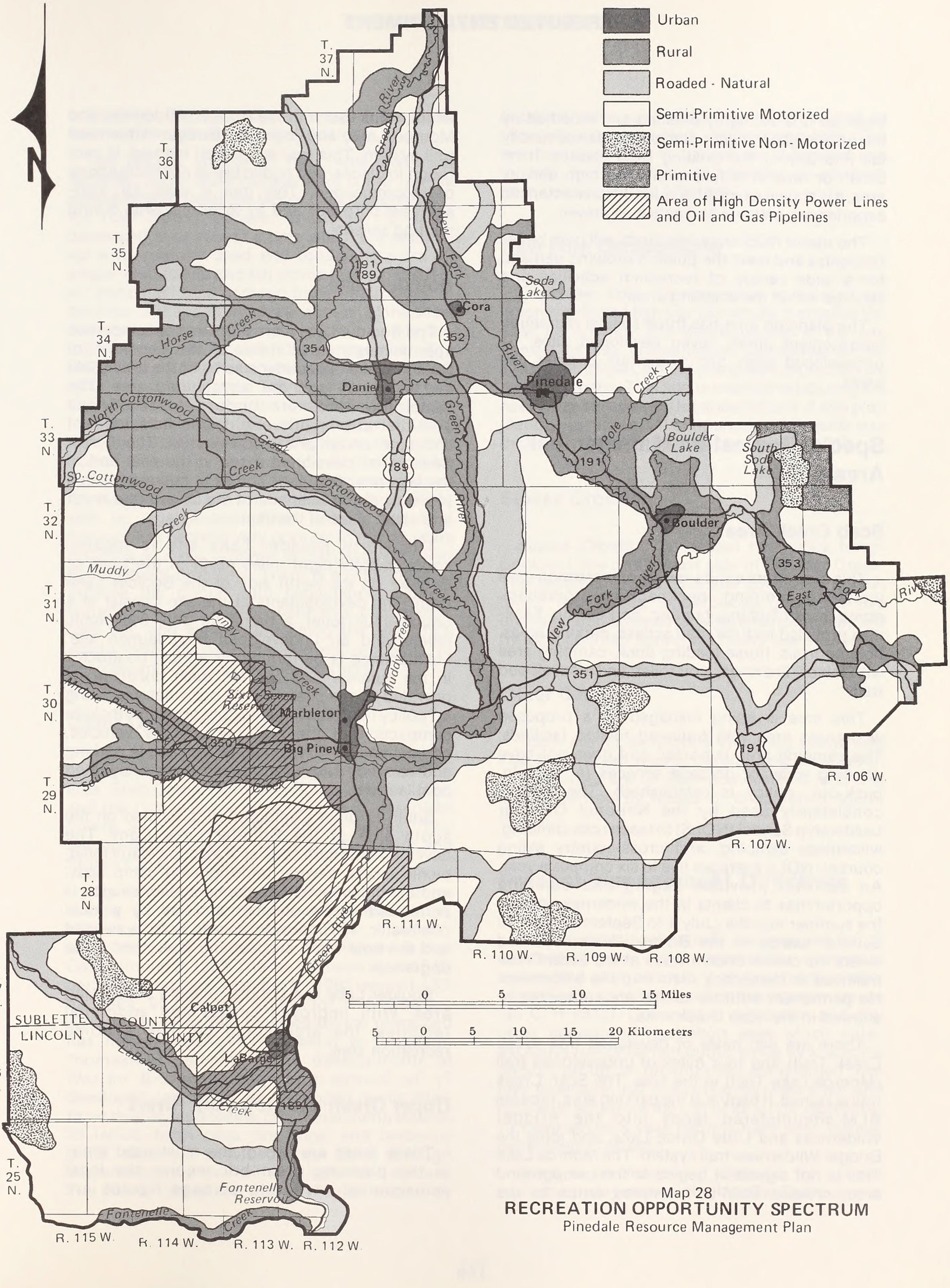
Use of the ROS system achieves the following:

1. Establishment of outdoor recreation management goals and objectives for specific management areas.
2. Trade-off analyses of available recreation opportunities as characteristic settings would be changed by other proposed resource management actions.
3. Monitoring outputs in terms of established standards for experience and opportunities settings.
4. Provision of specific management objectives and standards for project plans.

The ROS system divides the continuum into six management classes, with primitive providing the most isolated, natural, and challenging setting, and urban, on the other end, providing the most user intensive, developed, and modified setting. The six classes are: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded natural, rural, and urban. These classes are shown on Map 28.

The ROS system describes probable physical settings, experiences and activities for each class and identifies where these combinations occur within the planning area, but also allows flexibility.

In the planning area, an additional class has been added. This is the "Area of High Density Powerlines and Oil and Gas Pipelines," located west of Big Piney, Marbleton, and LaBarge.



Map 28

RECREATION OPPORTUNITY SPECTRUM

Pinedale Resource Management Plan

Because it is so highly affected and modified by the oil and gas industry, the area does not readily fall into any of the existing ROS classes. If an urban or rural area falls within the high density area, it is shown as such because the characteristic experiences, settings and activities prevail.

The use of ROS on public lands will help better recognize and meet the public's growing demand for a wide variety of recreation activities and settings within the planning area.

The planning area has three special recreation management areas, seven developed sites, 64 undeveloped sites, and numerous popular use areas.

Special Recreation Management Areas

Scab Creek Area

This area offers a wide variety of recreation uses including camping, backpacking, horseback riding, rock climbing, hunting, and fishing. Facilities provided include road access, parking areas, horse corrals, horse loading dock, camping area with tables, fire rings, a pit toilet, and a developed trail.

This area is being managed as a proposed wilderness area with trailhead related facilities. The camping area is nonfee and does not have drinking water or garbage services (a "pack-in, pack-out" policy is established). The area is consistently used by the National Outdoor Leadership School (NOLS) to teach rock climbing, wilderness camping, and cross-country skiing courses. NOLS averages five to six courses a year. An outfitter provides fishing and camping opportunities to clients in the wilderness during the summer months (July 1 to September 1). The outfitter camps in the Bridger Wilderness and meets his clients once a week at the Scab Creek trailhead to horsepack them into the wilderness. No permanent outfitter camps are authorized or allowed in the Scab Creek Area.

There are two miles of developed trail (Scab Creek Trail) and four miles of undeveloped trail (Monroe Lake Trail) in the area. The Scab Creek trail is signed. It begins at the parking area, crosses BLM-administered lands into the Bridger Wilderness and Little Divide Lake, and joins the Bridger Wilderness trail system. The Monroe Lake Trail is not signed. It begins in the campground area, crosses BLM-administered lands to the south, turns east into the Bridger Wilderness and Monroe Lake, and joins the Bridger Wilderness trail system. This trail is not well marked, is very rough in places, and public use is not encouraged or recommended. This trail is used for management purposes and by local residents during hunting season.

Boulder Lake

The Boulder Lake recreation area encompasses approximately three miles of the shoreline of Boulder Lake (420 surface acres of the total 1,843 surface acres) and the surrounding area. The remaining lands are under Forest Service administration with about one-half mile of shoreline under private ownership. The Forest Service has developed a site at the east end of the lake near the inlet. The BLM has established two sites at the west end of the lake on the north and south sides of the dam.

The North Boulder Lake site is located approximately eight miles north of the town of Boulder on the north side of the Boulder Lake Dam. The developments at the site consist of a double-vault toilet, a barbecue grill, five picnic tables, and an undeveloped boat launch site. Maintenance is performed by a local contractor in the summer and fall. No trash collection is provided at the site. A "take out what you bring in" policy has been initiated. Site problems include compaction of the meadow area by vehicles, competition with livestock, lack of ample parking and camping sites, and a need for a designated boat launch.

South Boulder Campground is located on the south side of the Boulder Lake Dam. The developments here consist of a double-vault toilet, picnic tables, several undesignated camp sites, and a primitive type boat launch. Maintenance is performed in the summer and fall by a local contractor. An improved access road is needed and the boat ramp and parking area need to be upgraded.

Boulder Lake is a popular boating and fishing area. With improved access and additional facilities, the area could become a prime recreation area.

Upper Green and New Fork Rivers

These areas are two of the most used areas in the planning area, but receive the least management. Accurate acreage figures are unavailable. A river management plan for these two rivers is currently being prepared.

The biggest stretch of river, with the most facilities, under BLM management is the 12-mile stretch referred to as the Upper Green mainly used for river fishing access. There are 12 semi-developed river access points which are reached via a maintained dead end road. There are 13 single-vault toilets and ten picnic tables provided. A "dumpster" type garbage trailer is provided at the base of the road which services all of the sites. The remainder of the river access points are undeveloped and receive little management. The land pattern along these rivers is a mixture of BLM, state, and private lands. The Wyoming Game and Fish Department provides and manages access to other areas along the river. These areas, along with the BLM areas, provide the main public access points to the river. Much of the BLM-administered land is not accessible except from the river because it is surrounded by private lands with no legal access. River floating and float fishing have become very popular in recent years resulting in a big increase in trespass and other management problems. There is a great need to provide the public with established, signed, controlled access areas where they can launch, take out, and legally stop along the way. This would help alleviate the current problems of trespass and conflicts with landowners.

Other Developed Sites

There are seven developed sites in the planning area. Scab Creek, North and South Boulder Lake, and the Upper Green sites have been described above as Special Management Areas. The remaining three are Warren Bridge, New Fork, and Stokes Crossing (Map 8).

Warren Bridge campground is located approximately 25 miles north of Pinedale where U.S. Highway 191 crosses the Green River. A self-pay fee system was initiated at the Warren Bridge Campground in 1983. The fee has been set at $3.00 per unit. Total fees collected for 1983 were $1,123; for 1984, $1,158, and $1,380 for 1985. The fee system has been well received by the users and has helped resolve the problem of long-term "homestead camping." The developments at Warren Bridge campground consist of 17 developed campsites, six developed picnic sites, three double vault toilets, one trailer dump station, 23 tables, trash cans, fire rings, and barbecue grills. Water is provided from June through September by a well with a pressurized system. The site is maintained during the use season by local persons contracted by the BLM and is routinely manned with a campground host. The site has been able to handle the increased use to date, and no land use problems or conflicts have been identified (Table 34).

New Fork Campground

The New Fork Campground is located on Wyoming State Highway 351 where it crosses the New Fork River. The developments at the site consist of five undesignated campsites, picnic sites, a vault toilet, a hand pump well, picnic tables, and trash cans. This site is maintained during the heavy-use season by a local contractor. A site plan identifying placement of future developments was drafted in the late 1960s and updated in 1985.

Stokes Crossing

Stokes Crossing is located two miles below Boulder Lake on the east side of Boulder Creek. The developments at this site consist of a vault toilet, two tables, a barbecue grill, and five undesignated campsites. Maintenance is handled by local contract during the heavy-use season.

Other Sites

There are 13 developed Wyoming Game and Fish Department sites in the planning area. Seven of these sites are on BLM-administered land and are authorized by leases or cooperative agreements.

Present Management Directives

Special recreation permits are required for all commercial use, major competitive recreation events, and when necessary, to meet management objectives in special recreation management areas (43 CFR 8372). Commercial recreation and any other specialized recreation uses which entail exclusive use of certain public lands by a specific person, group, or organization are charged user fees to ensure that the public receives a fair and equitable return for the use of its lands. Currently, 13 commercial 5-year permits have been issued, generating $100 each.

There is an increasing demand for special recreation use permits of all kinds. There are no permit quotas or allocation areas. Quotas on numbers of outfitter camps may be set in certain areas; in 1986, 22 such permits were issued. Special permits may also be required for parties trekking the Oregon Trail.

All public lands in the planning area are open and available to all individual, commercial, and competitive outdoor recreation uses. The only exceptions are where lands are allocated through the planning process to uses which are incompatible with recreation or where the lands need to be limited or closed to specific types of recreation use because of resource degradation, visitor health and safety problems, or user conflicts. A 14-day camping limit has been established for all developed sites in the planning area. Occupancy beyond 14 days is considered domicile and not recreation camping.

Fees will be charged at BLM sites when the level of development warrants a camping fee. Basic guidelines for fee sites include: established sites, toilet facilities, water, and garbage service. Revenues from BLM sites in 1986 were approximately $1,761.

Current recreation activity plans include the Scab Creek Primitive Area Management Plan, the Draft Scab Creek Wilderness Management Plan, and the Draft Green and New Fork River Management Plan, and the Oregon/Mormon Pioneer National Historic Trails Management Plan.

Visitor Use

Tables 35 and 36 show total fisherman days for lakes and streams in the planning area, as well as fisherman days attributable to BLM.

There are four BLM traffic counters in the planning area: Warren Bridge Campground, Upper Green River road, Scab Creek road, and Scab Creek Trail.

Traffic on the highways is made up of vehicles of different types and origins. At the Daniel Junction, the Wyoming Highway Department observed vehicles in three categories: 1) percentage of Wyoming cars; 2) percentage of foreign (nonresident) passenger cars; and 3) percentage of commercial vehicles. These categories or "Factors Influencing Traffic Patterns" reveal that, on the average, 55 to 60 percent of the vehicles traveling through Daniel Junction are (nonresident) passenger cars. The Wyoming Highway Department Automatic Counter Report Data also shows that average daily travel at Daniel Junction is on a general increase (Figure 8).

Detailed interpretation of these data can easily become speculative; however, traffic patterns are obviously increasing during the high recreation use season. It seems safe to assume that as the highway traffic increases, so does recreation use, especially since this area is a popular recreation destination.

The demand on the existing recreation facilities currently exceeds supply. The hunting demand, for example, is in excess of the supply and is expected to increase in the future (Wyoming Game and Fish Department Strategic Plan). The majority of the recent, rapid increase in demand is a result of the population boom in Sweetwater County. This growth is expected to continue for several years as a function of energy development. Combined with the recent growth in Lincoln County, the growth in Sublette County, and the ever-increasing demand being put on the recreation resources in the county by out-of-state users, a continued increase in demand will result.

TABLE 35

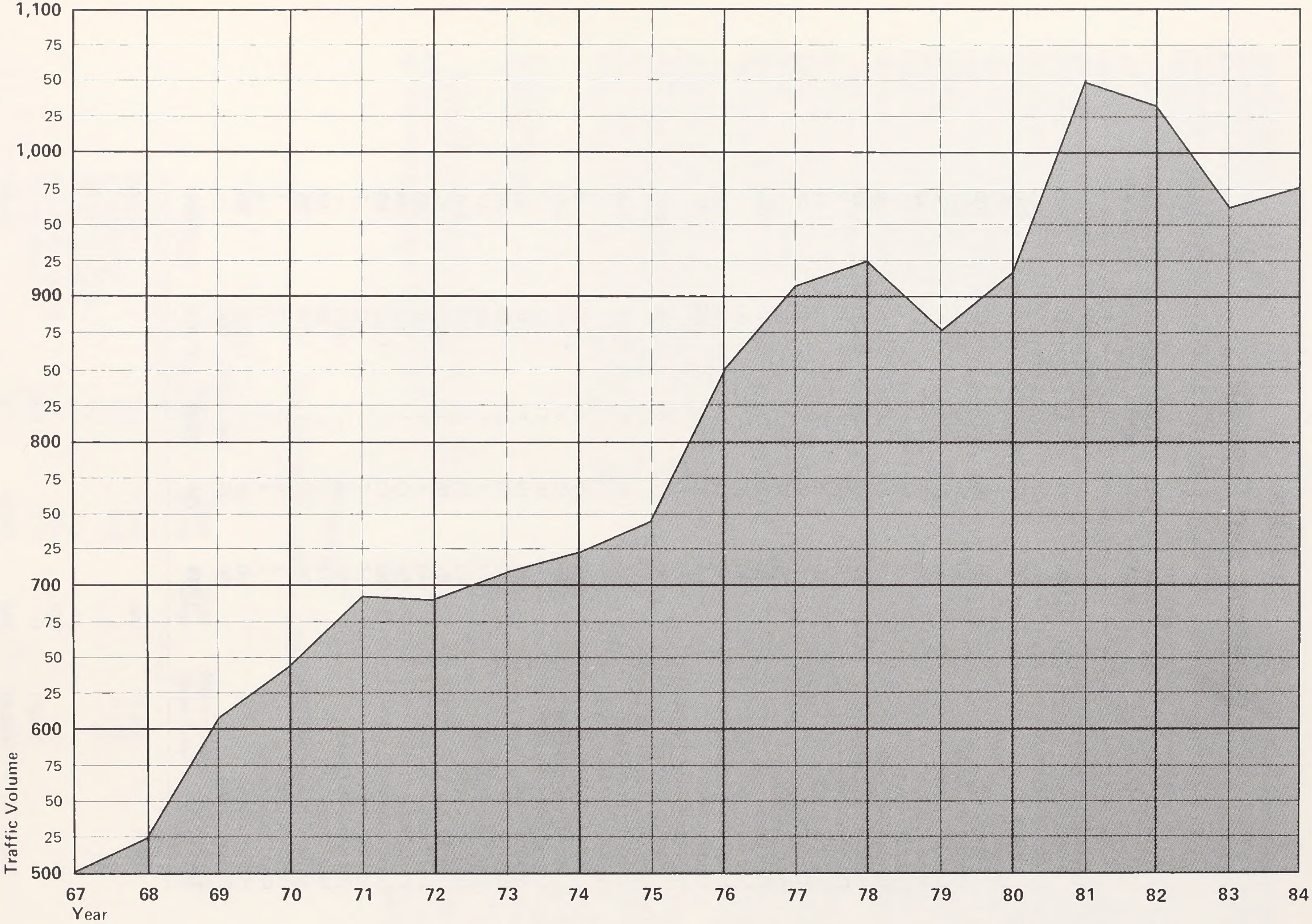
FISHERMAN DAYS - LAKES

Lake	Fisherman Days/ Year/Acre	Total Acres	BLM Acres	Fisherman Days Total	Fisherman Days BLM
Boulder	7.1	1,843	420	13,085	2,982
67 Reservoir	0.5	323	0	162	0
Bearberry Pond	3.0	7	7	21	21
Cutthroat Lake	-	15	15	-	-
South Soda Lake	0	261	100	0	0
Soda Lake	48.0	312	0	14,976	-
Totals	**58.6**	**2,761**	**542**	**28,244**	**3,003**

TABLE 36

FISHERMAN DAYS - STREAMS

River	Fisherman Days/ Year/Mile	Total Miles	BLM Miles	Fisherman Days Total	Fisherman Days BLM
Green River, above Fontenelle	90	14	8	1,260	720
Green River, below New Fork	90	40	10	3,600	900
Green River, above New Fork	100	93	11	9,300	1,100
Fontenelle Creek	40	25	5	1,000	200
LaBarge Creek	30	27	5	810	150
Rock Creek	20	3	2	60	40
Miller Creek	1	9	8	9	8
Pinegrove Creek	7	10	4	70	28
South Piney Creek	40	32	3	1,280	96
Beaver Creek	2	5	1	10	2
Spring Creek	10	5	4	50	40
Trail Ridge	5	6	5	30	25
Beaver Creek	5	17	13	85	65
Fish Creek	30	18	4	540	120
Middle Piney	40	40	—	1,600	—
North Piney Creek	36	31	5	1,116	180
Muddy Creek	3	36	5	108	15
New Fork River, below East Fork River	100	22	6	2,200	600
New Fork River, Pine Creek to East Fork River	125	22	2	2,750	250
New Fork River, above Pine Creek	4	25	2	100	8
Upper East Fork River	60	35	4	2,100	240
Lower East Fork River	4	16	1	64	4
Silver Creek	30	19	1	570	30
Scab Creek	10	10	2	100	20
Irish Canyon Creek	17	4	1	68	17
Boulder Creek	75	10	1	750	751
Pole Creek	67	18	1	1,206	67
Fall Creek	40	4	1	160	40
Pine Creek	54	10	1	540	54
Duck Creek	90	12	1	1,080	90
Marsh Creek	7	7	1	49	7
Cottonwood Creek	45	36	—	1,620	—
Maki Creek	13	5	1	65	13
South Cottonwood Creek	25	32	1	800	25
Beecher Creek	1	6	1	6	1
Red Castle Creek	2	4	2	8	4
Horse Creek	50	25	1	1,250	50
Beaver Creek	36	25	—	900	—
Totals	**1,219**	**758**	**124**	**37,314**	**5,284**



*Automatic Traffic Recorder Report (Wyoming State Highway Department) Northleg, Daniel Junction, Milepost 110.699

Figure 8
AVERAGE DAILY TRAVEL –
DANIEL JUNCTION

As indicated, the present demand exceeds the supply for some activities in the planning area, e.g., hunting. The boom that hit Sweetwater County (Rock Springs/Green River) in the mid-1970s resulted in a great demand placed on all of the recreation facilities and activities in the Pinedale area. This added pressure on top of the normal growth in recreation use resulted in accelerated impact to recreation use areas. The subsequent boom in Lincoln and Uinta counties (Evanston/Kemmerer) in the early 1980s has been additional pressure to the recreation resources in the area.

The Riley Ridge Oil and Gas project is expected to put an even greater demand on the already overused resources in the planning area.

Since the mid-1970s, the BLM has been able to upgrade many of its existing facilities to meet some of this increased demand. This has been done through increased and more frequent maintenance; replacing old facilities, e.g., toilets, installing tables, fire rings, signs, and adding parking areas. However, the biggest need in the planning area for the next few years is to establish new use areas. This would take some of the pressure off existing areas and also meet a need for public use of these areas. The primary areas that need to be focused on are the Green and New Fork Rivers and the Boulder Lake area. Another important need in terms of recreation use is the acquisition of legal public access to many areas throughout the planning area.

Problems and Conflicts

Recreation, in many cases, depends on the resources of other programs such as wildlife, fisheries, and watershed. Therefore, if something causes a problem to these resources, it causes a problem to recreation. Specific activities in the planning area which are creating conflicts with recreation are, for the most part, related to oil and gas exploration and development. There are some areas of conflict with livestock grazing in developed sites, and conflicts with potential timber sales in or near popular recreation use areas, but these are site specific.

Conflicts also exist within the recreation program, e.g., allocation of use between commercial and public use, ORV, permitted uses, and developed and dispersed use.

CULTURAL RESOURCES

The planning area is rich in cultural resources, with several sites of national significance. These cultural resources are divided into three broad categories: 1) Prehistoric sites, 2) historic sites, and 3) historic trails. Prehistoric sites are the most common and range in time from about 12,000 B.P. (Before Present) to the advent of the 19th century. Historic sites include vestiges of the Mountain Man-Trapper era, the emigration period, early settlement and ranching, and early resource extraction. The Lander Road, the Sublette Cutoff, and the Opal Wagon Road are some of the important historic trails that pass through the planning area.

Prehistoric

A three part division of the prehistoric chronology that recognizes the Paleoindian, Archaic, and Late Prehistoric periods is currently in use in Wyoming (Frison 1978). Recent dating information using Frison's basic chronology has been discussed in literature (USDI/USDA 1983a; Wheeler 1986) and is presented here.

The earliest of the Paleoindian cultural traditions, the Clovis complex, is not presently represented in the planning area. Likely locales for Clovis-age sites are found in the area, however, and future inventory may yet uncover Clovis cultural material (see Figure 9). Folsom cultural material is known and currently represented in private collections. Surface finds of Folsom material have usually been made along the major perennial watercourses in the planning area. No intact Folsom components are known within the planning area boundaries; the nearest buried Folsom material lies to the southwest at Meadow Draw in the Kemmerer Resource Area. Frison's report (1978) indicates that there are several sites within the Green River Basin with Folsom material.

Mid- to late-Paleoindian cultural material of the Hell Gap and Cody complexes, as well as other Paleoindian lanceolate forms, are found in the Pinedale Resource Area, primarily as surface finds. The numbers and locations of these finds suggest that some buried components are likely and will probably be documented by future work in the area. Generally speaking, the geomorphologic setting of the area, coupled with surficial

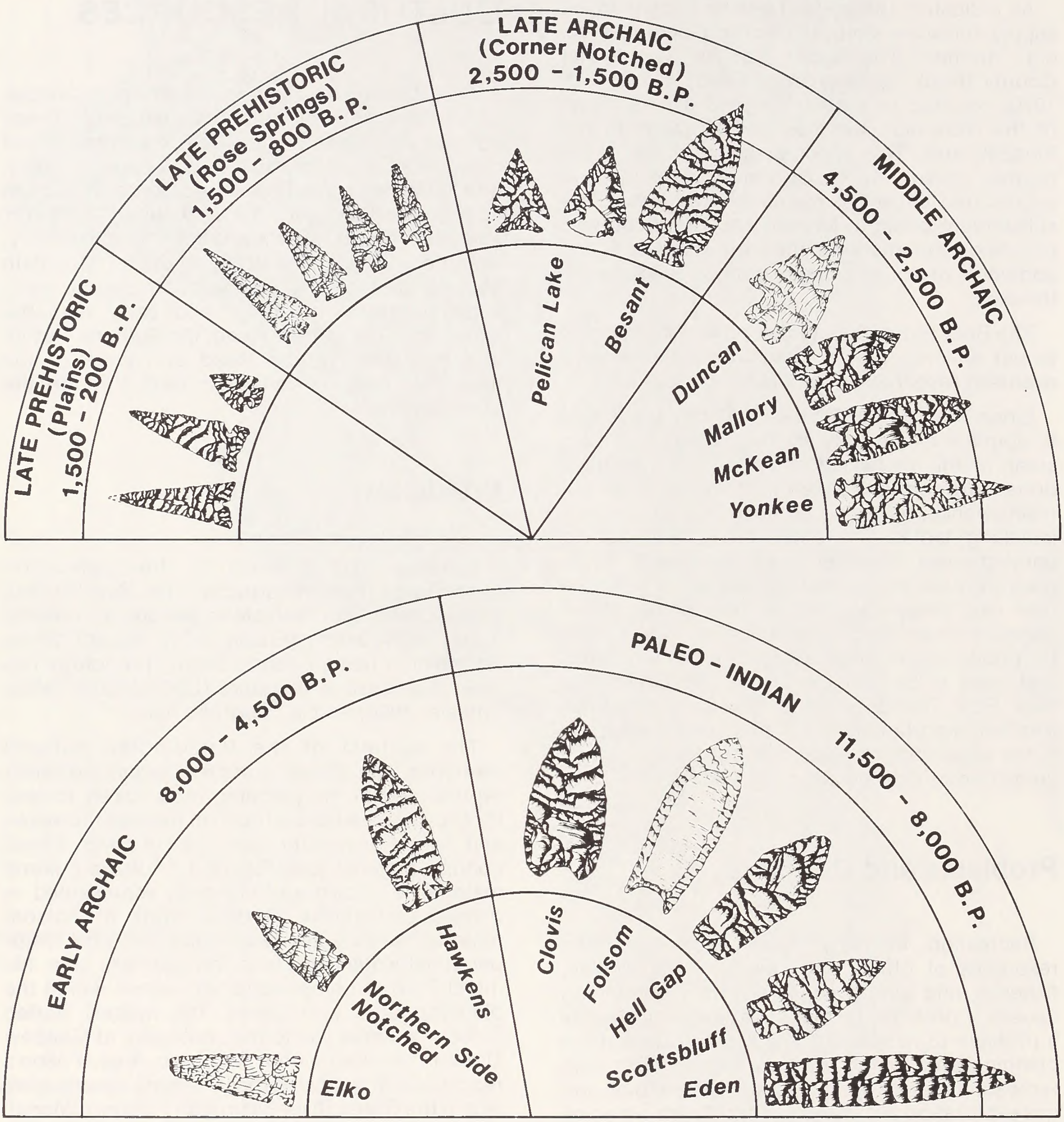

LATE PREHISTORIC (Plains) 1,500 - 200 B.P.
LATE PREHISTORIC (Rose Springs) 1,500 - 800 B.P.
LATE ARCHAIC (Corner Notched) 2,500 - 1,500 B.P.
Pelican Lake
Besant
MIDDLE ARCHAIC 4,500 - 2,500 B.P.
Duncan
Mallory
McKean
Yonkee
EARLY ARCHAIC 8,000 - 4,500 B.P.
Hawkens
Northern Side Notched
Elko
PALEO - INDIAN 11,500 - 8,000 B.P.
Clovis
Folsom
Hell Gap
Scottsbluff
Eden

Figure 9
PROJECTILE POINTS FROM VARIOUS TIME PERIODS
IN SOUTHWESTERN WYOMING

Paleoindian material, suggests the potential for extended Paleoindian occupation. Major factors inhibiting understanding of Paleoindian land use include extensive post Pleistocene erosion and lack of a systematic inventory, rather than absence of likely habitat or nonfavorable environmental conditions.

Post-Pleistocene uses are thought to reflect exploitation of animals adapted to more moderate climatic conditions. Until recently, the post-Pleistocene environment was thought to be dominated by a drier, warmer period referred to as the Altithermal (7,500 to 6,000 B.P.). According to the present literature, it is no longer believed that a dramatic altithermal event occurred during the Early Archaic period. Climatic fluctuations spanning several millenia may more accurately describe the post Pleistocene environmental process.

Projectile points from the Early Archaic period are recognized to be large side-notched varieties in the Northern-Side-Notched, Hawken, and Elko series. No components dating to this time period have been excavated in the resource area, but surface finds of Early Archaic diagnostics suggest their presence. In recent years, mitigation of energy extraction projects have recovered extensive Early Archaic deposits to the south of the planning area, at sites such as Shute Creek and Deadman Wash. Analysis of material recovered from these components, though preliminary in nature, suggests that Great Basin cultural affinities may have dominated, rather than the more traditional Wyoming High Plains influence found in the existing literature.

By Middle Archaic times (4,500 to 2,500 B.P.), modern climatic and vegetation patterns appeared well established. Cultural material dating to this time period is relatively abundant, particularly ground stone tools (manos, metates). Cultural adaptations during this period seem to stress a reliance upon communal hunting that emphasizes bison.

No dated Middle Archaic components have been excavated in the planning area, though McKean Technocomplex material is frequently recovered during surface inventory. Extensive McKean deposits were recovered during mitigative excavations at the Exxon Shute Creek plant site and at Maxon Ranch where a Middle Archaic age house pit has recently been investigated. The presence of a small but viable bison herd in the Upper Green River Basin would not have gone unexploited by McKean peoples, and identification of a substantial Middle Archaic presence in the planning area may be obtained by more intensive work in the area.

Late Archaic occupations traditionally have been recognized by the presence of diverse corner-notched dart points in the Beseant, Pelican Lake, and Elko series. Cultural adaptations and material remains are recognized to be extensions of patterns developed in earlier time periods. At Mummy Cave, for example, medium-sized corner-notched dart points are found in levels over 7,000 years old. Also, the Shute Creek excavations have recovered corner-notched dart points in sealed components dating to Early Archaic times. Thus, diagnostic artifacts, assumed to represent Late Archaic (2,500 to 1,500 B.P.) occupations, are now known to occupy a much greater time depth, calling for reassessment of the composition of Late Archaic assemblages.

The McKean Technocomplex material is included with a cluster of C-14 dates from between 3,000 and 1,800 B.P. and label the entire assemblage "Late Archaic" (USDI/USDA 1983a). Additional work will be required before the relationship between people producing Pelican Lake, Elko, and Beseant materials and those who produced the earlier McKean remains, as well as later occupations, can be more fully understood. No excavated Late Archaic components are known for the planning area, though the earliest C-14 date obtained from the Wardell Buffalo Trap was about 1,580 years ago (plus or minus 110 years). and that may evidence Archaic age use of the site (Frison 1973).

The Late Prehistoric period can be viewed as a continuation of Archaic adaptations (communal hunting, especially of bison, use of a variety of plants) coupled with two innovations: use of the bow and arrow, and presence of pottery. Sites dating to this time period are abundant in the planning area, as evidenced by a noticeable increase in the numbers of components C-14 dated to the Late Prehistoric (USDI/USDA 1983a). Artifacts diagnostic of the period form three distinct groups: early small, stemmed corner-notched varieties in the Rose Springs/Eastgate series; later, a series of small side-notched points including the Prairie Side-Notched and Plains Side-Notched varieties; and most recently, small, triangular, frequently side-notched, basally notched and tri-notched arrowpoints such as Cottonwood points, Desert Side-Notched varieties, and Eden-Farson points (Frison 1978).

Two Late Prehistoric sites have been excavated in the planning area. Site 48SU301 was excavated by the University of Wyoming in 1970 to 71 as a research project (Frison 1973), and site 48SU867 was partially excavated as mitigation of the Exxon sour gas trunkline in 1985. Site 48SU301 was repeatedly used as an arroyo trap to procure bison (between 1,000 to 1,500 B.P.) by peoples manufacturing and possessing Plains side-notched arrowpoints. The Harrower site was occupied somewhat later in time, (280 to 700 B.P.), and contains tipi rings, a hunting blind and a driveline, and was the focus of procurement of diverse mammals (bison, antelope, mountain sheep, deer, canis sp., badger, muskrat, beaver, raptors, and various rodents). Points recovered from the Harrower site include Eden-Farson tri-notched, Cottonwood, and small side-notched varieties. Tentative identification of ceramics recovered from the site include Crow, Shoshonean, and Intermontaine wares.

Historic

The first white man to visit the Upper Green River country appears to have been Wilson Price Hunt who, in 1811, descended from Union Pass, entered the area around Beaver Ridge, and then traveled west along the Hoback River on his way to Astoria. The following year, Robert Stuart and a group of Astorians, traveling eastward, passed through the Upper Green region, and discovered the important South Pass travel route which they took to the Sweetwater River. The 1812 trip of Robert Stuart is the first recorded American passage through the planning area, as well as use of what was later to become the Oregon Trail east of South Pass (Rosenberg 1982).

No additional exploration through the planning area occurred until 1824 when Jedediah Smith and William L. Sublette, who had been trapping in the Wind River country, rediscovered South Pass and took note of the beaver-rich upper Green River. By the time of the first Trapper Rendezvous, held in 1825 on the Henry's Fork below modern-day Burntfork, much of the Green River country was explored and trapped by William Ashley's Mountain Men. The popularity of the Upper Green with the Mountain Men grew such that in 1832 Capt. Benjamin L.E. Bonneville, taking the first wagons across South Pass, established a trading post, Fort Bonneville, between the Green River and Horse Creek above present-day Daniel. One year later, in July 1833, the first of six rendezvous was held between Fort Bonneville and Trapper's Point, attended by such legendary Mountain Men and Trappers as Thomas Fitzpatrick, Henry Fraeb, Robert Campbell, Lucien Fontenelle, Milton Sublette, Andrew Drips, and Joe Meek, as well as Nathaniel Wyeth, Capt. Walker, and Sir William Drummond Stewart. All told, some 250-300 whites and a sizable encampment of Indians, especially Shoshones, attended the 1833 Rendezvous, which was considered by some to be the last "pure" rendezvous. In 1834, rendezvous was held on the Ham's Fork above Granger, Wyoming, but returned to the Trapper's Point area for rendezvous in 1835, 1836, 1837, and 1839. Finally in 1840, the last rendezvous was held at which time Father Pierre DeSmet offered his "Prairie Mass," the first such Christian service in the Rocky Mountain region.

Dropping beaver prices, scarcity of animals, and a change in fashion meant the demise of the rendezvous tradition. During the entire Trapper era, more rendezvous were held in the vicinity of Horse Creek and the Green River than at any other spot in Wyoming or surrounding mountain states. The colorful Mountain Men have left a rich cultural legacy, if not material cultural remains, which form an important part of the cultural resources in the area.

In 1842 to 1843, Capt. John C. Fremont, of the Corps of Topographical Engineers, entered the planning area on his mapping expedition for the United States government. Fremont Butte was the location of his base camp from which he explored the Wind River Range. Beginning in 1843 to 1844 the era of initial discovery ended, and the great Westward migration of the nation began. Emigrants passed through the planning area as early as 1845, following old Trapper routes like the Sublette Cutoff. (A short, but significant segment of the Sublette Cutoff is located on BLM-administered land in the extreme southern part of the planning area.) It was not until 1857 that Capt. Frederick W. Lander, with funds requested of the U.S. Congress by John C. Fremont, entered the area to survey the first Congressionally authorized "practicable" road West. This road was to cross rivers at fordable locations, thus avoiding the necessity of ferries, and was to provide good water and forage. Built in 1858, the Lander Road branched off from the main Oregon Trail just west of South Pass, and enters the planning area near Buckskin Crossing on the Big Sandy River. Lander's Road traversed the present-day Squaretop country and forded the New Fork and the Green Rivers above Ross Butte. Passing above the present-day town of Big Piney, the Lander Road then skirted the Deer Hills area, and ascended South Piney Creek where it leaves the planning area east of Snyder Basin and the historic Fort Piney. The Lander Road is considered an historic resource of national importance, and is prominent in the Bureau of Land Management Historic Trails Management Plan.

Early Settlement

Settlement occurred in the area after construction of the Union Pacific Railroad, 75 miles to the south, in 1869. The earliest ranches were established along the major creeks flowing out of the Wyoming Range at the southern end of the planning area. Additional ranching operations were begun in a south to north pattern of settlement, beginning at Fontenelle Creek. It was on Fontenelle Creek that John "Sheep" Smith became the first area resident when he began his sheep operation in 1872. One year later, Roney and Alfred Pomeroy established a cattle outfit at the mouth of Fontenelle Creek in 1873. Subsequently, Jacob Herschler, Charles Holden, Ariel Hanson, the Rathbuns, John Holland, and George McCray settled on the Fontenelle (Rosenberg 1982).

The Desert Land Act of 1877 appears to have accelerated settlement in Big Piney country. In 1877, Rudy Thorton settled on Dry Piney Creek; Edward Swan and Otto Leifer were ranching on Middle Piney Creek in 1878; Daniel Budd settled on North Piney Creek in 1879; and Abner Luman settled on the Green River in 1880. About 1885, Daniel Budd moved to the new community of Big Piney, where in 1887, he became postmaster. In 1888, Frank Ball was ranching on Cottonwood Creek and John Vibble and Louis Broderson were on the New Fork River. Thus, by 1890, most of the Green River drainages were settled, predominantly by cattle ranchers.

The disastrous winter of 1888 to 1889, coupled with the open range policy of that time, brought about drastic changes in the livestock industry in the area. Hay was grown for winter feed, necessitating irrigation of bottomlands.

As more sheep were grazed in the resource area, friction between the cattlemen and sheepmen increased, and in 1895, erupted into violence at Raid Lake, on the Bridger National Forest, and at Granite Springs in the planning area. Though short-lived and minor in nature, the cattle-sheep wars in Sublette County have their place in history, and contributed to the predominance of cattle grazing in the area today.

Tie-hacking, or cutting railroad ties for the Union Pacific railroad, is an often overlooked but important element of local history. Tie hackers would work a one-half mile long by 200-foot wide swath of timber, skid their railroad ties to collection points, then in the spring at peak runoff times float the timber down tributary creeks to the Green River. During peak years, 200,000 to 500,000 ties and other lumber would arrive at the city of Green River for use by the railroad or in the coal mines as mine props. Tie hacks of Swedish, Finnish, Norwegian, and Indian descent added ethnic as well as economic diversity to the Piney country. At various times from 1868 to 1940 North and South Cottonwood creeks, North and South Horse creeks, Dry Beaver Creek, LaBarge Creek, and others were harvested for commercial timber, railroad ties, and mine props. Regulations promulgated by the Bridger National Forest in 1908, a declining coal industry in the early 1930s, and a 1940 change from hand-hewn (hacked) ties to sawmill produced timber put an end to the era of the tie-hack.

After the Oregon Shortline was completed in 1882, the rail station at Opal became a major shipping point for ranches on the slopes of the Wyoming range. Although a number of routes for stock drives were probably used, the principal route followed the Pinedale to Opal stagecoach road and also followed a corridor reserved by the Secretary of the Interior for stock drive purposes. Truck transportation began to replace the difficult herd drives about 1920, but the drives to Opal continued until 1934.

General settlement of the Upper Green River Valley followed the geographic patterns established by the open range ranches. Land entries in the study area were made first for the headquarters sites of the ranches, then for the hay meadows that could be irrigated, and then for tracts bordering streams which provided water for stock and for irrigation purposes. Most of the land away from the streams was never legally entered and remained open range for livestock. The peak in rural settlement population was reached in the 1920s. Since then, many ranches have been absorbed into larger operating units.

Early communication and commerce were also tied to the ranching network. Prior to 1920, all of the rural post offices and small town sites of the region were or had been ranch headquarters. The settlements and post offices were linked by stagecoach lines running from Kemmerer and Opal to Pinedale, and by another stageline running from Pinedale to Lander and Rock Springs. A major shift in the economic base of the area began in the early 1920s when several important oil discoveries were made in the region. The village of LaBarge, first called Tulsa, and to a large degree, the town of Marbletown were products of the oil boom.

Recreational use of the area has developed steadily throughout the course of the 20th century. Hunting and fishing attract seasonal visitors to the area and contribute significantly to local economies.

LANDS

The Pinedale Resource Area is in the northwestern portion of the State of Wyoming and the northern portion of the Rock Springs District (Map 1). The Pinedale Resource Area boundary encompasses a total of 4,726,000 acres. Of this total, the U.S. Forest Service administers 2,686,000 acres; the National Park Service administers 295,000 acres; the state of Wyoming administers 89,000 acres; the BLM administers 931,000 acres; 655,000 acres are fee (private) lands; and 66,000 acres are administered by other federal agencies.

The planning area encompasses portions of four counties: Teton, Sublette, Lincoln, and Fremont. The majority of Sublette and Teton counties are within the planning area, while only a small portion of Lincoln and Fremont counties are within the planning area.

Although the planning area boundary encompasses four counties, the BLM-administered lands located within Teton County are either in litigation (the U.S. Court system is currently determining ownership of these lands) or are being administered by another BLM office.

The Pinedale RMP will address only those lands within Sublette and Lincoln counties that are outside the administrative boundary of the U.S. Forest Service (approximately 1,618,000 acres; Table 37).

TABLE 37
LAND AND MINERAL STATUS

	Federal	State	Private
Surface	931,000	88,000	602,000
Minerals	1,185,000	97,000	336,000

All of the mineral estate underlying the National Park Service and U.S. Forest Service lands are administered by the BLM. Much of the private lands had the mineral estate (either all of the minerals or portions of the minerals, i.e., oil, gas, coal, phosphate, etc.) reserved to the U.S. Government. In these cases, the mineral estate is administered by the BLM although the surface estate is administered by those respective agencies. Table 37 describes the mineral estate within the boundaries of the planning area which consists of state minerals, private minerals, and minerals administered by the BLM.

A synopsis of the lands within the planning area, by county, follows.

Sublette County

Sublette County contains portions of the Bridger, Teton, and Shoshone National Forests. Approximately 200 acres of the Shoshone National Forest are located in the northeastern part of the county. BLM-administered lands are concentrated in the southern and southwestern portion of the county. State of Wyoming lands are scattered throughout the county, primarily on "school section" lands (sections 16 and 36 of each township).

Lincoln County

Lincoln County contains BLM-administered lands, with private (fee) lands occurring primarily along the major drainages (Green River, LaBarge Creek, Muddy Creek, and Fontenelle Creek). State of Wyoming lands are scattered throughout.

Because of their proximity to the area, a brief description of Fremont and Teton County follows.

Fremont County

Fremont County, within the planning area boundaries, contains all U.S. Forest Service lands as a part of the Bridger-Teton National Forest.

Teton County

Teton County contains portions of the Teton, Targhee, Bridger, and Shoshone National Forests. The portions of the Bridger and Shoshone National Forests within the county are small while the Teton and Targhee forests cover a large portion of the county. The entire Jackson Hole National Elk Refuge, administered by the U.S. Fish and Wildlife Service, and the Grand Teton National Park are within this area. BLM-administered lands are located in two separate areas around Alta, Wyoming, and around Jackson Hole, Wyoming.

The BLM-administered lands in the Alta area are administered by the Idaho Falls District office. The BLM-administered lands within the Jackson Hole area consist primarily of lands in litigation. These lands are located along the Snake River and are referred to as the "Snake River Omitted Lands."

Access

The planning area is bisected by numerous roads and trails on a variety of land ownerships and under various maintenance responsibilities. Road surfaces range from 6- to 8-foot wide two-track jeep trails to modern two-lane (45- to 50-foot wide) highways. The roads provide numerous purposes including: public access, landowner access, oil and gas development, as well as the resource management activities carried out by the BLM and other entities; however, only those roads that provide public access or access for the management of public lands and resources are discussed in this document (Map 29). Many roads on Map 29 are on private or state land and provide access to public land only with the permission of the controlling party. The reader should consult the Pinedale Resource Area office for the legal status of a given road.

Rights-Of-Way

Approximately 235 miles of electrical lines (transmission, distribution) are permitted in the planning area. Although some electrical lines are buried, approximately 95 percent are installed above ground.

Telephone lines traverse a distance of 145 miles within the planning area, 60 percent of these are buried.

There are approximately 445 miles of pipelines in the area. Over 95 percent of these facilities are buried. The majority of these lines are oil and gas pipelines located in the southwestern portion of the planning area (Map 30). The 445 miles of pipeline consists of 42 miles of oil pipelines, 390 miles of natural gas pipelines, and 13 miles of water pipelines.

Mineral development activity and population growth in the area will continue to create a demand for rights-of-way.

Land Disposal

Lands which have been identified for disposal (exchange or sale) while meeting FLPMA requirements are identified on Map 11. These parcels are generally isolated and therefore difficult to manage efficiently. In addition to the two existing sanitary landfill sites in the planning area, there is potential for disposal by sale of future landfill sites. The entire planning area is available for exchange. Land exchanges would primarily be pursued if a benefit to the government existed.

It is anticipated that existing and future demands for land sales and or exchanges would remain at a low activity level. Lands involved in disposal would not constitute a significant portion of the planning area.

SOCIOECONOMICS

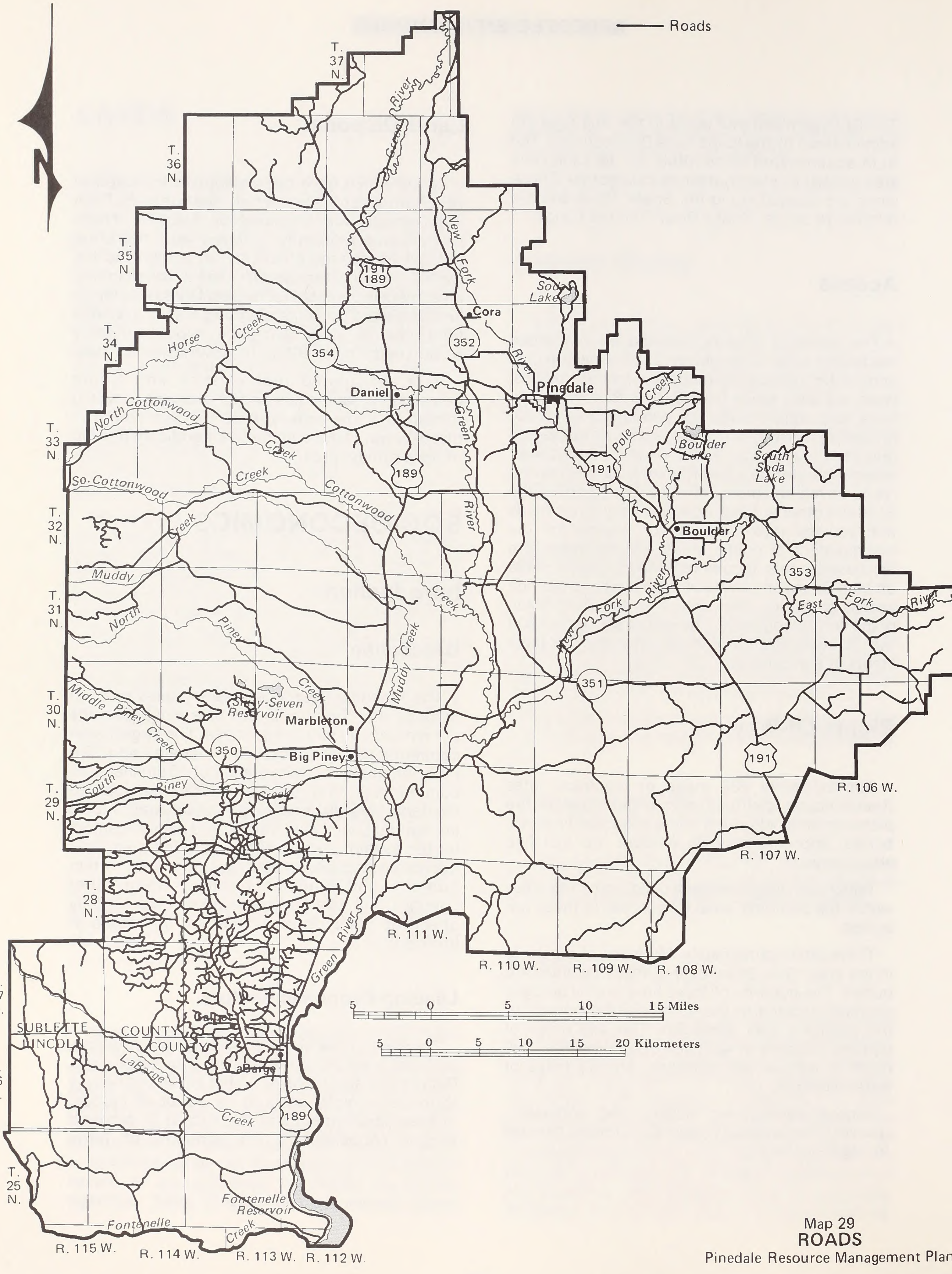
Introduction

Description

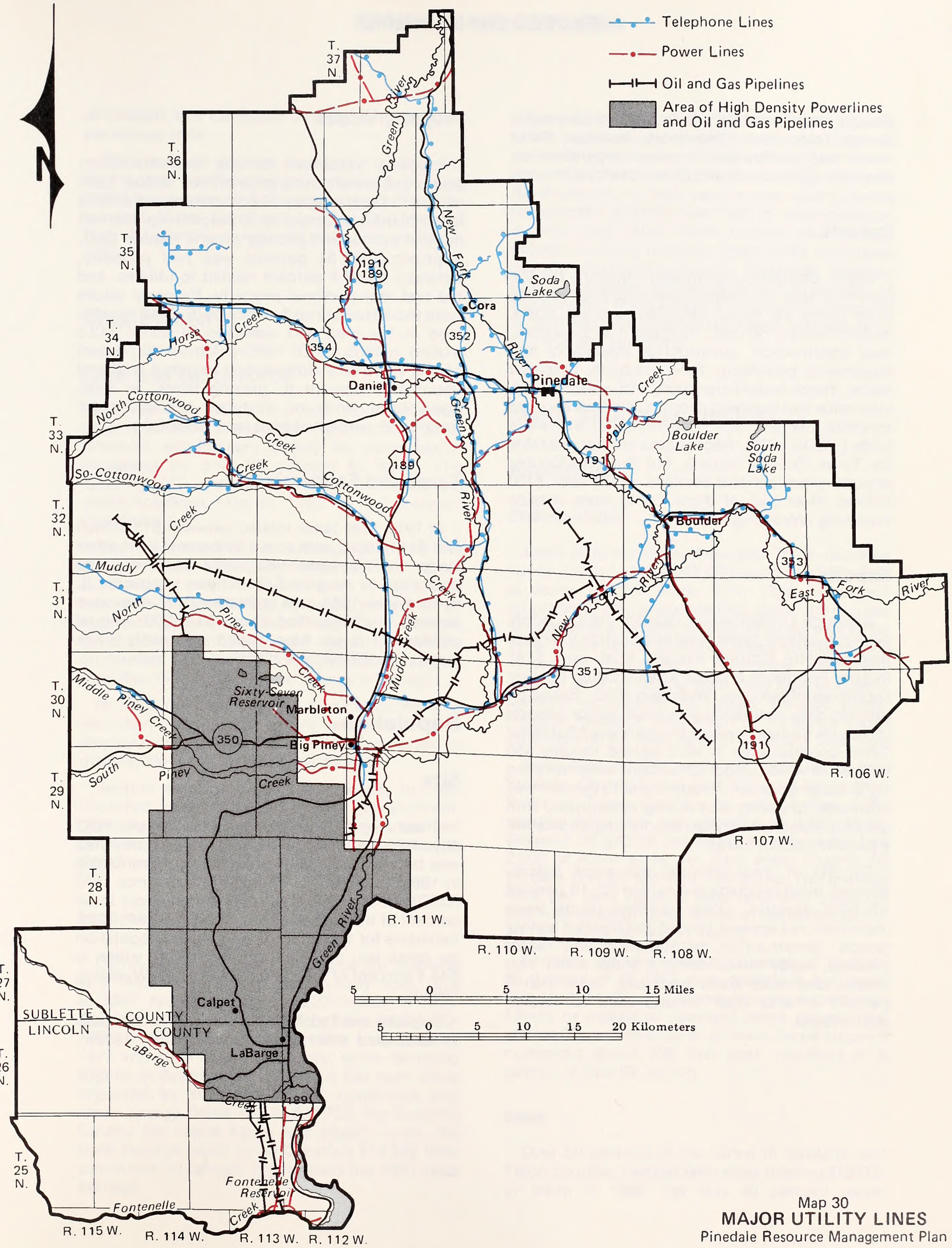
The Pinedale Resource Area includes most of Sublette and Teton counties plus small portions of Fremont and Lincoln counties. The largest area communities are Jackson, Pinedale, and Big Piney. In addition, there are about 15 smaller area communities that provide limited services to residents and visitors. Also, Lander and Dubois in Fremont County are trading and service centers for the eastern portion of the planning area. This document focuses mainly on the area within Sublette and Lincoln counties. When other counties and related communities meaningfully affect the planning area, they are addressed in this section.

Leading Economic Sectors

Tourism, minerals, agriculture, construction, and manufacturing are leading area enterprises. Retail trade and services, which are linked heavily to tourism, jointly account for about 40 percent of area employment and 20 percent of personal income (Appendix I). The economy of Teton



Map 29
ROADS
Pinedale Resource Management Plan



Map 30

MAJOR UTILITY LINES

Pinedale Resource Management Plan

County depends heavily on tourism relative to the Grand Teton and Yellowstone National Parks while that of Sublette is more dependent on minerals, agriculture, and other activities.

Imports

Major domestic commodity imports by the planning area (Sublette/Teton counties) include such items as motor vehicles, aircraft, boats, mobile homes, railroad equipment and services, new construction, construction machinery and equipment, petroleum, food products, prepared feeds, motor freight transport and warehousing, insurance and business services, medical services (doctors, dentists, and hospitals), and wholesale trade (USDA 1978). Recent data are not available for Teton County imports, but Sublette County imports products and services worth over $130 million. Over half of these come from outside Wyoming (Wyoming 1986).

Exports

Although current export data for Teton County are not available, latest state information indicates that Sublette County exports total over $243 million. Petroleum and gas sales account for over two-thirds of the total (Wyoming 1986). Based on historic data, estimated industrial sector exports (products and services) by the combined Sublette/Teton counties area in 1978 totaled roughly $50 million, of which about 25 percent were from the hotel/lodging sector. An additional 13 percent was attributed to eating and dining enterprises, with general recreation services accounting for another 6 percent (USDA 1978).

Exports of meat animals and some miscellaneous meat products accounted for 18 percent of 1978 exports. Other leading items were manufactured apparel, tanned and finished leather goods, construction maintenance and repair services, ready mixed cement, sheet metal, real estate, and retail trade generally. Less than 4 percent of area total exports went to foreign destinations.

Property Values

Property valuation for the Sublette/Teton portion of the planning area totaled almost $224 million in 1984, roughly 10 percent above the 1983 level. Of this total, roughly 56 percent represented mineral production (mostly oil and natural gas), approximately 33 percent was real property, between 4 and 5 percent related to utilities, and the rest was personal property. Property values have increased annually since 1979. Total taxable land in the area was assessed at about $12.3 million in 1983 (USDI 1985b). Almost 40 percent of this value was attributed to irrigated land and about 12.6 percent to grazing lands. In total, agricultural lands of all types accounted for roughly 55 percent of total land valuations.

Taxes and Entitlements

In 1983, area taxes totaled between $13 million and $14 million, with about 60 percent from sales taxes. In this same year, area bank deposits amounted to roughly $134 million (Appendix I). In fiscal year 1983, area entitlements from revenue sharing funds reached about $171,000. Annual entitlement levels have varied noticeably since fiscal year 1979 (USDI 1985b).

Population

Size

According to current state information, 1983 population in the Sublette and Teton county area was between 15,000 and 16,000, up from 14,000 in 1980. It has about doubled in size since 1970 (USDI 1985b). This area represented about three percent of the estimated state population in 1984. Estimates for 1986 place the combined population for these two counties at over 18,000, which is 3 to 4 percent of the state total in 1986 (Wyoming 1985d).

Sublette and Teton counties jointly encompass an estimated 8,851 square miles (USDI 1985b).

At present, this translates into about 1.8 persons per square mile.

Over the next decade, population is projected by the state of Wyoming to increase 35 percent, based upon present economic expectations for the area. Males composed roughly 52 percent of both the planning area and state populations in 1983.

Employment

Level and Labor Force

At 10,630 in 1983, the annual labor force had roughly doubled in the planning area since 1973. However, employment during the same period increased by only 90 percent to 9,857. The resulting 773 unemployed residents raised the unemployment rate in 1983 to 7.3 percent (Appendix I).

The total number of unemployed and the corresponding unemployment rate has varied substantially over the decade prior to 1983, with the mid-1970s having unemployment rates approaching those of 1983. This probably reflects the chain reaction of economic impacts, especially on tourism and recreation in the area, resulting from the mid-1970s national energy shortfalls.

In 1983, the planning area labor force equaled less than five percent of the state total. Area employment was estimated to have increased to over 12,000 by 1986 (Wyoming 1985d).

Sectors employing the most people in 1983 included services, retail trade, government, construction, and agriculture. Of these, the first three employed between 55 and 60 percent of all persons employed in the area in 1983.

Income

Combined area personal income for Sublette and Teton counties increased yearly from 1974 to 1983, reaching roughly $220 million in 1983. This is about 3 to 4 percent of the state total (USDI 1985b). Average per capita income rose between 1977 and 1983 in Teton County, while declining slightly in Sublette County which has been more impacted by slower economic conditions and lower energy demands. At $11,738, the Sublette County per capita figure was slightly under the state average while Teton County's $14,582 level was about 20 percent higher than the 1983 state average.

Over 98 percent of the 1983 personal income in the area came from nonfarm sources, such as services; construction; retail trade; government operations; and, in Sublette County, minerals development. In that year, wages and salaries represented slightly over half of area personal income, and other labor income represented between 4 and 5 percent. Other forms of income include proprietor's income, dividends, interest, rent, and transfer payments. About 40 percent of Sublette and Teton counties joint personal income in 1983 was composed of dividends, interest, rent, and transfer payments.

Major Economic Sectors

Agriculture

Characteristics

Land in farms in Sublette and Teton counties jointly totaled about 582,000 acres in 1982. This is down 104,000 acres from 1974. Harvested cropland in 1982 accounted for about one quarter of total land, a decline of roughly 20 percent since 1974. Some of the resource area's cropland also serves as pastureland. Therefore, total 1982 pasture land, including both crop and woodland pasture, accounted for about 436,000 acres. Relative livestock production is the area's major ranch operation (also refer to Livestock Grazing).

Farm size in 1982 averaged 1,658 acres with Sublette County farms over 3.5 times larger than those in Teton County. By comparison, 1974 average farm size was reported at 2,431 acres. Between 25 and 30 percent of county farms had 2,000 or more acres per farm while roughly 55 percent contain less than 500 acres. The average 1982 per farm value of farm land and buildings was estimated to be $708,000 in Sublette County and $1 million in Teton County.

Farming was the chief occupation of roughly 60 percent of all 1982 farm operators, and most operators lived on the farms they were operating. Family or individual operated farms represented almost 80 percent of all area farms. Hired laborers numbered about 750 that year, resulting in a payroll of over $2 million.

Sales

Over 50 percent of the farms in Sublette and Teton counties had per farm sales totaling $10,000 or more in 1982. For this 50 percent, sales averaged roughly $109,000 per farm and acreage averaged about 2,857. In general, agricultural sales in Sublette and Teton counties, jointly, totaled roughly $21 million in 1982 with the general farm average at $60,000. Cattle/calf sales accounted for about 9/10 of these total sales. Although 70 percent of area farms raised cattle/calves in 1982, selling them was the major business of only 66 percent. At least 60 percent of total livestock sales are estimated to be exported, and roughly nine-tenths of cattle/sheep total sales are exported (USDA 1978 and Wyoming 1986a).

Public Land. Area public lands (BLM, Forest Service, and state) are important to local livestock operators (see Livestock Grazing). This is especially true for the spring season when ranchers need to remove livestock off the home meadows so they can begin irrigating the hay crops. By late fall, cattle are back on home pastures. Permittees use BLM-administered AUMs for about three months per season. Land administered by BLM in the area produces an estimated total of 107,907 AUMs annually, not all of which are presently being used by local livestock operators. The 1985 BLM grazing fees were $1.35/AUM. Comparatively, the fee for operators utilizing private pastures was approximately $8.00/AUM.

Ranch Operations. Ranch budget data indicate that in 1982, planning area livestock operations with 500 or more cows had highest returns above cash costs and also positive returns after deducting both cash costs and family labor. In addition, they realized positive returns to total investment, except for Bridger-Teton operations. However, planning area operations tended to experience negative returns to land in 1982. The returns per cow in 1982 ranged between -$80.76 to $103.40, depending upon the size of the livestock operation.

There was no one cost item on the 1982 budgets that was highest for all operators. However, some major cost items for operators included interest on land and other items, hay production, hired labor, capital replacement, and pasture leasing. Only the Pinedale operators with 500 or more cows were estimated to have substantial costs for protein supplements and general overhead.

Livestock Grazing. There are presently 107,907 AUMs of available grazing on BLM-administered lands in the planning area, but only about 78 percent are actively being used. Most BLM authorized grazing occurs in Sublette County. However, roughly 10,200 AUMs are provided by the 103,000 acres of the planning area that extends into Lincoln County. This area provides grazing for about 1,600 of the 60,000 cattle presently utilizing Pinedale Resource Area forage. None of the grazing activity occurs in Teton County.

Of the total cattle grazing the planning area, about one third, or 20,000, are being fattened for sale while the remainder are cow/calf units. On average, cattle graze the planning area for three months per year. However, some spend only six weeks there before being moved to other feeding areas.

In 1982, census figures indicated that cattle/calf numbers totaled 68,596 head in Sublette County and 53,882 in Lincoln County. Total cattle/calf sales in these counties in 1982 were 38,000 head and 28,000 head, respectively. This is about 52 to 56 percent of total county cattle numbers. The corresponding sales values in 1982 equaled almost $14.3 million in Sublette County and $16.7 million in Lincoln County.

Present grazing in the planning area supports about $7.6 million of the area's annual direct livestock sales, which translates into over $18 million in direct and indirect and induced sales of total area products. It also increases total area personal income by roughly $1.8 million and employment by 208 man-years. Area personal income in 1983 totaled over $60.6 million in Sublette County and over $145 million in Lincoln County (Wyoming 1985b).

In 1986, total employment was estimated at about 4,040 in Sublette County, about 12 percent from agricultural/farm sources, and 7,500 in Lincoln County, where roughly 11 percent was from agricultural/farm (Wyoming 1985c).

Crops. The market value of area crops in 1982 was slightly over $1.5 million, (roughly 75 percent from hay, silage, and related seeds), with the remainder from grain sales. The area harvested 3,900 bushels of wheat in 1982 (Teton County). No harvesting of wheat was reported in 1983. Teton County produced 67,000 bushels of barley in 1982 and 123,000 bushels in 1983. Sublette and Teton counties jointly produced 35,800 bushels of oats in 1982 and 42,800 bushels in 1983. Area hay production totaled 193,300 tons in 1982 and 210,700 in 1983 (Wyoming 1984a).

Forestry

General Characteristics

In general, the annual total harvested forest products from BLM-administered lands include 1.2 mmbf of sawlogs with stump value of $20,400; also 50 mbf of fuelwood valued at $600; and 8 mbf of post/poles valued at $96. In addition, between $2,000 and $4,000 worth of Christmas trees and wildling sales occur each year. The following analysis will discuss only sawlog, fuelwood, and pole and post harvesting impacts.

Harvesting Impacts

Combined sales value for sawlogs, fuelwood, and poles and posts is slightly over $21,000 (USDI 1985b). The resulting planning area business activity (output revenue) is between $61,000 and $62,000, not including milling operations or related impacts. Those impacts are discussed later.

Employee compensation received directly from harvesting operations for timber on lands administered by BLM total just under $4,000. Where this is added to compensation paid to employees supplying indirect needs of the harvesting operation and to compensation paid to employees supplying the needs induced by direct income paid to households, the total is roughly $6,000 (USDI 1985b).

Total planning area personal and property income related to the BLM timber harvesting operations does not exceed $23,000, and less than one job in the area can be attributed to the harvesting of BLM timber (excluding milling operations) (USDI 1985b). By comparison, 1983 personal income from all sources within the area was roughly $220 million and area employment is estimated at roughly 10,000 to 12,000 (Wyoming 1984b and 1985b).

Processing of BLM Sawlogs Within the Resource Area

Only about 10 percent of the total volume of sawlogs harvested in the area is processed in the planning area. The remaining 90 percent is processed in neighboring counties and some sawlogs occasionally are shipped to Colorado for milling. Local mills tend to operate sporadically, influenced by the prevailing demand for lumber. In fact, they often operate at subsistence levels, consuming substantially less than 10 percent of the area's total harvested sawlogs.

For this analysis, an assumed 10 percent of harvested sawlogs from BLM-administered public lands are processed in local mills. At present prices, the resulting lumber sales by these mills total between $40,000 and $41,000. This translates into a corresponding total revenue for the resource area of slightly over $90,000 (USDI 1985b).

Direct employee compensation from local sawmilling of 10 percent of BLM's annual sawlog volume amounts to over $9,000 with subsequent direct, indirect, and induced compensation within the resource area topping $14,500. Total personal and property income within the area attributable to milling of the 10 percent portion of BLM sawlogs amounts to about $26,446, yearly.

Local annual employment directly attributed to milling BLM sawlogs amounts to less than one job. Combined, direct, indirect, and induced jobs total about 1.5 jobs annually throughout the area.

Economic Impacts to the Total Processing Region

As stated earlier, most sawlogs harvested in the area are milled in neighboring counties. The following discussion encompasses all these processing acreas with regard to economic impacts from milling timber from the the planning area.

Based on current prices, direct output revenue in the total processing area from lumber sales related to BLM sawlogs is estimated at nearly $441,000. This compares to a total output value of almost $12 million realized by the logging/milling sector in the processing region in 1980. When subsequent regional multiplier effects are considered, total regional revenue (business activity) traceable to BLM sawlogs tops $1 million. By comparison, total business activity from all sectors in the processing area in 1980 reached roughly $7.8 billion (Colorado 1983).

Direct income attributable to harvesting and milling BLM sawlogs in the total processing area is slightly over $110,000 with combined direct, indirect, and induced regional income topping $205,000. This is a very small part of the entire processing region's income. In 1982, the region's personal income from all sources totaled over $1 billion (Wyoming 1984b).

Direct regional employment related to the logging/milling sector's processing of BLM's annual sawlog sales is slightly over 8.5 workers. The multiplier effects from these operations result in a total regional employment need for roughly 15.25 workers. By comparison, there were between 43,000 and 44,000 total jobs (all sectors) in the processing region in 1982 (Wyoming 1984b).

Mining and Other Mineral Activities

Oil and Gas

In 1985, the base year for this analysis, there were 1,066 existing wells in the planning area. Of these, approximately 1,049 wells were on line producing oil, gas, or a combination of the two. In addition, Exxon had 17 new gas wells drilled and ready to come on line. Present estimates indicate that total output from these 17 Exxon wells will be 480 million cubic feet per day, or 175 billion cubic feet per year. Of this output, 65 percent would be CO_2, 23 percent would be methane gas, roughly 4 percent would be H_2S, 8 percent would be nitrogen, and 0.6 percent would be helium. Exxon plans to process the H_2S into about 696 long tons of sulphur per day. There is also a possible Phase II to the Exxon Riley Ridge project that would mean new wells in addition to the existing 17. However, the Phase II plans are still tentative, and the number of additional wells is not predictable at this time.

Exxon's Riley Ridge project (Phase I) will result in a marked increase in gas production in the planning area. Based on current projections, total yearly methane production in the planning area will at least double and CO_2 production alone will exceed methane production.

Output

Sublette County's production of oil in 1985 totaled over 1.6 million barrels, up slightly from the 1.5 million reported a year earlier, but down roughly 30 percent from 1978. The state of Wyoming assessed the value of this output at slightly over $43.9 million (Wyoming 1986b).

Sublette County gas production in 1985 was roughly 31.8 billion cubic feet, down from the 39 billion of 1984, and roughly 30 percent under 1978. It is estimated that 1985 oil production rose above 1984 while gas declined because of the incentive of comparatively higher oil prices in 1985. According to state of Wyoming reports, 1985 gas output was valued at just under $83.5 million.

In addition to the direct output value of oil and gas ($127.4 million in 1985) produced in the planning area, there are indirect and induced effects on total area output revenue amounting to roughly $46.4 million, resulting in a total oil and gas revenue impact of about $174 million (USDI 1985b).

Personal Income

Personal income directly related to area oil and gas activities amounted to roughly $6 million in 1985. When indirect and induced effects of these activities are included, the area income impacts totaled over $11 million that year.

Employment

Including the drilling and production stages of well activities, it is estimated that between 400 and 500 man years of direct annual employment are supported by area oil and gas activities. An additional 300 to 400 man years of related employment in other economic sectors are also spawned annually by these activities. Assuming no changes in technology or other relevant economic relationships, and based on current projections for number of wells expected over time, these annual employment figures could increase by at least 100 man-years per year by year 2005.

Other Minerals

In 1985, only about two percent of the state's total annual assessed mineral valuation was supplied by the planning area (Sublette County) (USDI 1985b).

The area's miscellaneous minerals output was valued at about $137,593 in 1985, mainly salable minerals such as sand, gravel, and moss rock. Other minerals, except oil and gas, have low to no development potential in the foreseeable future.

Recreation

Data on nonconsumptive recreational activities within the planning area are lacking. Therefore, only consumptive (hunting and fishing) recreation is included in this analysis (Table 38).

Output

Roughly 49,000 days of consumptive recreation occurs annually on BLM-administered lands in the planning area. Related recreationist expenditures are estimated to total over $2.5 million per year, of which over 85 percent is expended on hunting. The remainder of the annual expenditures are related to fishing.

When direct consumptive recreation expenditures within the area are added to indirect and induced expenditures, the total contribution to area output revenue of consumptive recreation on BLM-administered lands exceeds $5 million annually.

Personal Income

Personal income directly attributable to consumptive recreation on BLM-administered lands in the planning area totals between $700,000 and $800,000 per year. When this impact is combined with indirect and induced effects within the area economy, the total reaches roughly $1 million yearly.

Employment

About 90 man-years of direct employment is produced annually by consumptive recreation activities on BLM-administered lands. Subsequent impacts on the total area economy results in a yearly area total of 112 man-years supported by these recreation activities.

TABLE 38

CURRENT RECREATION LEVELS AND ACTIVITY VALUES
(Consumptive Use Only)

Subject	Annual Recreation Days[1]	Expenditure Per Day (dollars)[2]	Total Value ($1,000)[3]
Antelope	5,689	88.13	501
Deer	14,685	47.06	691
Elk	12,884	65.90	849
Moose[4]	169	85.74	14
Bird/Waterfowl	4,404	28.90	127
Total Hunting	**37,831**		**2,182**
Fishing/Trout[4]	10,931	35.79	391
Total Consumptive	**48,762**		**2,573**

[1] Recreation day figures applied to livestock/recreation benefit/cost analysis.

[2] Source: Wyoming Game and Fish Department, 1985 Annual Report

[3] Calculated by multiplying recreation days times expenditures/day.

[4] Figures are for total BLM-administered lands in Sublette County rather than for the entire resource area. This is the best estimate available from state figures.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter identifies the environmental impacts expected from each of the alternative resource management plans described in Chapter 2. The importance of the impact, including magnitude, duration, incidence, and probability are discussed where possible. National, regional, or local importance is also discussed in some instances. Any unavoidable adverse impacts and irreversible/irretrievable resource committments, if any, are included in the general discussion of the appropriate resource rather than in a separate section.

The impacts described in this chapter are estimates based on the alternatives. In some cases, existing data were used; in others, very little data were available. Lack of data has contributed a degree of uncertainty to the impact estimates. However, the alternatives include professional judgments and projections of anticipated actions and levels that provide an adequate and reasonable range for analysis.

The chapter is arranged to address impacts to all resource elements for each particular alternative. Actions Common to All Alternatives were taken into account in analyzing the impacts for each alternative. In addition, impact causes and relationships common to all alternatives are included within this analysis (Appendix J). Table 2 is a summary comparison of the estimated total impacts of each alternative.

The assumption and analysis guidelines utilized for impact analysis are found in Appendix B.

PREFERRED ALTERNATIVE

The Preferred Alternative provides for resource tradeoffs which could favor resource protection or development or a compromise. A detailed description of the alternative may be found in Chapter 2, Alternatives, and a summary is in Table 1.

Based on the analysis and information provided in the previous chapters, no adverse impacts would occur to wilderness values, natural history, paleontological resources, or locatable mineral values.

Air Quality

Prescribed burning would increase short-term impacts from smoke emissions, but these would not be significant due to implementation of prescribed protection measures.

Minerals

The application of seasonal restrictions on 427,810 acres of crucial and noncrucial big game winter range represents an approximate 29,000-acre increase in planning area lands covered by these restrictions. This would slightly increase the impact on oil and gas activities over existing management.

Leasing the entire Rock Creek ACEC with a no surface occupancy provision would allow the development of an estimated 1.25 trillion cubic feet of CO_2 and methane, depending on accessibility. Access would be by directional or off-site drilling only. Because the area surrounding the Rock Creek ACEC (approximately 11,000 acres) would also be leased with a no surface occupancy requirement, directional drilling distances into the ACEC would be as much as three miles. In some areas, such as LaBarge Creek, access would be precluded altogether. Further study in the area surrounding the ACEC may indicate areas where occupancy could occur.

Restrictions on the Beaver Creek drainage to protect the Colorado River cutthroat trout would also affect oil and gas accessibility. However, full development of the minerals resource could be accomplished without significant adverse impact.

The no surface occupancy requirement on cultural and recreational sites would preclude drilling activities in these areas. Because these sites are small, no significant impact would occur.

Costs to geophysical activities would be slightly increased and some activities would be displaced. The no surface occupancy requirement in the Rock Creek ACEC and surrounding area would restrict exploration in a 16,000-acre contiguous area, with high potential for deep gas reserves.

A future revocation of phosphate, coal, and oil shale withdrawals would not create an adverse impact because there are no known areas containing economic mineral potential identified within these lands.

Development of salable minerals, e.g., sand, gravel, and moss rock, would have the greatest potential during the next 10 years, although minimal development is expected. No adverse impacts would occur as a result of the restrictions and limitations on development of these minerals.

Conclusion

The adverse impacts to oil and gas development would be slightly more than under existing management. Increased costs would result from the application of no surface occupancy requirements and seasonal restrictions for wildlife (on approximately 38 percent of the area) and other resource protection requirements. Directional drilling or suspending operations during restricted time frames would cause costs to increase.

Leasing the Rock Creek ACEC and surrounding area (16,000 contiguous areas) with the no surface occupancy stipulation would allow for development of at least a part of the known gas reserves present. The no surface occupancy requirement would make drilling and exploration access very difficult to nonexistent over most of the area.

No adverse impacts would result from revocation of the existing mineral withdrawals.

Soils

Logging, logging residue disposal (e.g., slash burning), range development construction, watershed projects, and prescribed burning would tend to remove vegetation and increase soil disturbance, soil loss, compaction, and loss of soil productivity at least for short periods. This would be offset by managed livestock grazing, increased off-road vehicle limitations, and special management of sensitive watersheds.

Sedimentation contributions into streams would decrease due to displacement of activities outside many of these crucial areas.

In determining oil and gas exploration and development impacts, historic well data were used to identify current and future impact trends. Estimated short- and long-term cumulative impacts from oil and gas activities are summarized in Table 39.

While there would be surface-disturbance restrictions on steep slopes or in areas of known landslide potential, some development would occur in such areas resulting in slumping and accelerated soil loss which would be locally important but not significant. In areas of high landslide potential (Map D), the likelihood of construction triggering slippage would increase, especially on toe slopes. Landslide loss is permanent and not reclaimable, leading to irretrievable loss of soil and productivity. This would be locally important but not significant.

The protection measures for Beaver Creek would reduce siltation from surface-disturbing activities. Although siltation would not be eliminated, adverse impacts would be minimal.

Livestock grazing would continue to impact riparian areas until grazing management systems are implemented. The long-term improvements implemented would lead to stabilization and improvement in many areas.

Approximately 77 acres would be disturbed due to construction of range developments. Concentrations of livestock on these areas would tend to remove the vegetation from the immediate area but this impact would be minor and outweighed by the benefits gained.

Prescribed burning would increase soil loss immediately after treatment, but this would diminish within a short time. Restricting grazing for 2 years after treatment would allow vegetation to establish, thus helping to prevent soil movement.

The proposed ORV open area would encourage activities that would disturb the soils in that area. This disturbance would be localized, however, and comprises a minor portion of the planning area.

Based on the analysis, minor adverse impacts to soils would occur.

Watershed

Restricting desert land entries (DLEs) would prevent increases in sedimentation and salinity. The impacts to riparian areas, floodplains, and wetlands would be reduced as a result of controlled grazing and salting practices, reduced and mitigated minerals development, and ORV traffic restrictions. Sedimentation and salinity contributions caused by accelerated erosion would be reduced by up to 20 percent over the long term.

TABLE 39

PROJECTED DRILLING ACTIVITY AND ASSOCIATED SURFACE DISTURBANCE
(1985 through 2005)
(10-year and 20-year figures)

	1985 through 1995	1985 through 2005
A. Wells to Be Drilled	450	900
Expected Producers	290	580
Expected D&A	160	320
B. Total Producers[1]	1,316	1,566
C. Cumulative Acres of Surface Disturbance[2]	11,202	17,672
D. Cumulative Acres Stabilized[3]	5,090	10,180
E. Net Long-Term Disturbance (E = C - D)	6,112	7,492

[1] The total number of producers in 1985 was 1,066.

[2] The cumulative acres of surface disturbance in 1985 were 4,732.

[3] Assume 3-year stabilization.

No livestock grazing on approximately 10,500 acres of the unallotted lands would reduce the potential for increased sediment contribution.

Avoidance areas for rights-of-way would have a beneficial impact on watersheds by localizing and limiting removal of vegetation cover.

Based on this analysis, a decrease in sediment and salinity would occur from minimizing surface disturbance and implementing two watershed management plans, resulting in minor adverse impacts to watershed resources.

Wildlife Habitat

Minerals

Based on a survey of disturbed acreage associated with producing wells in producing oil and gas fields fields, an average of 16.5 acres per producing well were physically disturbed during initial development. This acreage included well site locations and facilities, local access roads and pipelines, field equipment buildings, and other facilities primarily associated with a producing field or group of wells. After reclamation approximately 5.5 acres would remain disturbed. Using 5.5 acres of long-term disturbance per producing well, nearly 5,863 acres of disturbed surface (physical habitat loss) has occurred as a result of well development in the past. This figure does not include acreage disturbed by geophysical exploration, major transport pipelines, or acreage disturbed or occupied by communities and local infrastructures established or expanded primarily as a result of oil and gas industry development. Examples include miles of bladed seismographic trails that have become permanent access roads throughout the planning area. The impact of oil and gas activities on wildlife habitat must consider the acreage that has been reclaimed. Some areas have been rehabilitated to provide as good or better habitat for wildlife than before disturbance occurred. Other rehabilitation efforts have been unsuccessful or have established habitat types of little value for wildlife. Limited rainfall, severe winter conditions, and poor soils make reclamation difficult. The length of time required to reestablish vegetation is increased by these environmental conditions.

Losses of habitat usability or behavioral avoidance zones must also be considered. The extent and type of human activities are the most important factors in determining these impacts.

Species involved, type of habitat, topography, and time of year also greatly influence the extent of these impacts. From 50 to 100 percent of the habitat value may be lost (Thomas 1983). Using information developed by Thomas, twice as much additional habitat is lost through creation of behavioral avoidance zones as is lost physically (a conservative estimate).

Oil and gas development would remove approximately 7,500 acres of wildlife habitat from production on a long-term basis, impacting all wildlife species associated with the disturbed sites.

Mule deer winter range would receive the greatest impact, with 16 percent of crucial winter habitat affected. Severe winters during the last 10 to 15 years have been the controlling factor limiting population size. These relatively frequent winter kills have reduced population levels below current habitat carrying capacity (Johnson 1984). Assuming that population levels reach carrying capacity of the winter range, the reduction of available winter habitat (16 percent) would result in commensurate population reductions.

Nine percent of the crucial elk winter range would be adversely impacted during the next 10 years. Major impacts would be loss of forage and increased human activity. This would result in reduced populations or possible habitat abandonment. Habitat abandonment would probably occur with intensive field development, but would also result from the placement of an individual well in a key winter area.

The effects of surface-disturbance activities on elk calving could be important for some herds in the area. Increased human activity and roads in elk calving areas could result in abandonment by pregnant cows. If high quality calving habitat is not available for displaced elk, lower productivity could result. Seasonal use restrictions for calving areas could be employed to lessen this impact.

Impacts to antelope winter habitat would be less severe than to deer habitat. Disturbance and activity are projected to impact only four percent of the crucial winter range. Due to the smaller amount of disturbance in critical winter ranges and the greater mobility of this species, population reductions would not be anticipated.

Because there is a significant amount of high-potential oil and gas deposits in the planning area, important habitat losses could occur over the next few years, depending on the economic feasibility of development of these deposits as market prices change.

Impacts to wildlife from minerals activities then, would be the similar to existing management with a few exceptions. Impacts would be less than current management. Seasonal use restrictions on 427,810 acres of big game winter range would help mitigate the effects of disturbance to antelope, elk, moose, and mule deer. This acreage includes North Miller Mountain and Bench Corral elk winter ranges, and the Mesa mule deer winter range.

North Miller Mountain

About 3,400 acres of noncrucial elk winter range and 56,300 acres of crucial winter range would be protected by seasonal use restrictions.

Protection of the noncrucial winter range would allow the elk to remain at higher elevations during fall and early winter, thus lessening the impact on the crucial winter range. Forage would remain unused by elk until snow drives them to these lower elevation ranges. Potential depredation on private land would also be reduced as elk would be able to remain on federal lands longer during most winters.

Bench Corral

Approximately 13,440 acres of noncrucial elk winter range and the existing 3,800 acres of crucial winter range would be protected by seasonal use restrictions. Approximately 300 elk would benefit by this action because they would be undisturbed on the winter range. The Wyoming Game and Fish Department feeds this herd during severe winters, although natural winter range could sustain them until snow depth becomes excessive. Protection of the winter range from November 15 through April 30 would help relieve this feeding operation during light winters. Excessive human disturbance could drive the elk off the winter range and onto the feedground even though other factors would allow them to remain on native range.

Mesa

About 12,800 acres of noncrucial deer winter range on the Mesa and 20,500 acres of crucial winter range would be protected by seasonal use restrictions. Population fluctuations have resulted from severe winter conditions in recent years for these deer. Stress and resultant mortality should be reduced by protecting the deer from human activity during the winter.

Vegetation Manipulation

Although vegetation treatment would be conducted on 98,552 acres, all crucial mule deer, antelope, and sage grouse winter habitat would be excluded from vegetation treatment unless wildlife would benefit. With these and the other prescriptions listed in Table 9, brush control would prove beneficial to most wildlife species, although livestock needs may require individual project design specifications that are not primarily wildlife oriented. Activity planning would include interdisciplinary input from range, watershed, fire operations, and wildlife to help resolve conflicts.

Long-term forage increases would be available to wildlife which would help maintain wildlife populations at Wyoming Game and Fish Department objective levels.

Livestock Grazing Management

Riparian habitat would improve conditions for all species that utilize these areas. Colorado River cutthroat trout habitat would be improved, thereby increasing long-term survival potential of the species.

Elk ranges where conflicts exist would be managed to meet multiple use needs, including providing adequate forage for wintering elk on designated ranges. Potential forage conflicts would be avoided by restricting conversions from cattle to sheep in deer and antelope crucial winter ranges.

Livestock Grazing Management would improve wildlife habitat by identifying and resolving conflicts through allotment management plans.

Wild Horse Management

Removal of all wild horses from the area would benefit mule deer in the LaBarge and Reardon Canyon areas. Forage conflicts would be eliminated and habitat effectiveness improved on these crucial deer winter ranges.

Forest Management

Timber harvest would reduce total cover levels by 6.7 percent in the planning area, but areas with high wildlife values (20,836 acres) would be managed using minimum cover level restrictions. Intensive mitigation is proposed to reduce the impact on elk from timber harvest in four management units.

Deadline-Pinegrove Unit

Elk habitat has already been impacted in this unit by extensive oil and gas development. Displacement of elk from the Graphite area into Miller Mountain for winter range is evidence that the increased human activity may be already pushing elk beyond tolerance levels. Cover levels are currently well below optimum and habitat effectiveness is low. Forest management that reduces coniferous cover on winter ranges would compound this already tenuous situation. The future of winter elk use in this area may depend on increasing cover and reducing present human activity levels. Thus, forest management in the Deadline-Pinegrove Unit would have a slight impact to elk. Limiting timber harvest, in winter ranges, makes the impacts from human activity related to energy development more possible to mitigate.

North Piney and Miller Mountain Units

Mineral development in this elk habitat has been minimal. Although coniferous cover is below optimum levels, human activity has not impacted the elk to the degree experienced on the Graphite and Riley Ridge elk winter ranges. Opportunity exists to harvest timber and keep disturbance to elk within tolerance levels, provided careful coordination between forestry development, energy development, and wildlife habitat is accomplished. Waiting until the energy development has already pushed the elk close to the tolerance of human activity, causes these options to become scarce or no longer available. Therefore, with the protection provided to this area, minimal impacts would occur.

Activity planning would identify areas where timber harvest and energy development could be accomplished with proper mitigation for elk winter habitat. Individual timber sales could be planned while anticipating the location and impact of roads, wells, and pipelines.

Eastside-Hoback Unit

The mitigation described for this unit should adequately protect wildlife habitat. No oil and gas development has occurred on winter ranges in this unit so no conflicts have occurred.

ORV Activity

Most big game would be protected during the critical winter stress period by implementing the seasonal restrictions and ORV limitation areas. This would result in increased winter survival, greater herd productivity, and promote winter range stability. Impacts to big game would be similar to those discussed in the minerals section for the Miller Mountain, Bench Corral, and Mesa areas.

Open areas for ORVs would be established on 12,160 acres of deer winter range. This impact would be adverse for this small percent of the total winter range. However, the remaining winter range would be closed to snowmobiles and should provide adequate habitat and maintain population levels to meet Wyoming Game and Fish Department population objectives for deer.

Degradation of habitat through vegetation removal and increased erosion would be reduced.

Conclusion

With the exception of the increased acreage protected by winter occupancy limitations, impacts to wildlife from oil and gas would be the same as existing management. The total acres removed from wildlife habitat production would remain the same for all alternatives. However, mitigation through seasonal occupancy restrictions on big game winter ranges would provide a more desirable wildlife situation.

Habitat lost through development of facilities (wells, roads, etc.) and increased activity during production would adversely impact wildlife. The seasonal use restrictions, along with constraints on ORVs and forest management would reduce this impact, but individual species may approach tolerance levels that could result in displacement, reduced productivity and(or) direct mortality. Minimum human activity would help meet Wyoming Game and Fish population goals by keeping habitat effectiveness within tolerance levels. Monitoring of well fields would help document these tolerance levels for future developments.

The overall impact of the forest management program on elk would be less adverse than existing management. The combination of energy impacts and timber harvest of already suboptimal conifer cover would reduce habitat quality for elk. The major impact stems from increased human activity associated with energy development. The timber harvest adds to this impact by creating new roads for human access and removing more escape and thermal cover. Habitat quality would be adversely impacted although not to the extent of decreasing population levels.

Aquatic habitat is expected to be maintained with incorporation of adequate mitigation into timber sale design.

In the long term, this alternative would aid in maintaining wildlife populations at objective levels.

Livestock Grazing and Vegetation

In allotments with crucial wildlife and watershed values, 50 percent of any forage increases realized would be reserved for wildlife use and watershed production, and 50 percent to livestock grazing use. Allotments without crucial wildlife habitat and watershed concerns would be evaluated on a case-by-case basis and more than 50 percent of the increased forage may be allocated to livestock grazing.

The allocation of additional AUMs from vegetation treatment would make approximately 6,225 AUMs available for livestock use. The 6,225 AUMs available would be the result of 3,572 AUMs from vegetation treatment in the "I" category allotments and 2,653 AUMs from the "M" category allotments. The net increase from vegetation treatments in the "I" category allotments would be about 2,636 AUMs. The adjustment for forage lost to lands and oil and gas activities would be a reduction of 936 AUMs. The increase from vegetation manipulation in the "M" category allotments would be evaluated on a case-by-case basis and more than 50 percent may be allocated to livestock grazing, if no crucial wildlife or watershed values would be involved. The vegetation manipulation in the "M" category allotments would be financed by sources other than BLM monies, such as permittees, other agencies, or advisory boards. If an unplanned fire occurs in an "M" or "I" allotment, and the fire falls within the prescription for the allotment, the fire may be allowed to burn.

The removal of wild horses from the North LaBarge (2077) and Desert Common (2040) Allotments would benefit the livestock permittees and the management of the allotments involved by 1) removing the competition with livestock for 1,200 AUMs of forage and water, and 2) eliminating conflicts from the wild horses grazing in the rested pastures. The wild horses normally use the rest areas of the allotments as there is no competition for forage and better quality feed is available. The use in the rested areas defeats the purpose of restoring vigor to the plants and the establishment of seedlings to increase vegetation production. The problem exists in the South and Alkali Pastures of the Desert Common Allotment and the Big Mesa Pasture of the North LaBarge Allotment.

The general limitation of not allowing a change in kind of livestock from cattle to sheep in crucial deer and antelope ranges would not create an impact on the livestock industry. Most changes in kind of livestock in the past have been from sheep to cattle and there have not been any recent requests to change from cattle to sheep.

Managing allotments in the "I" category to improve range condition, watershed condition, and wildlife habitat would slightly impact livestock operators by limiting grazing periods, and requiring herding or moving livestock.

Constructing water developments outside of crucial elk ranges would lessen the competition for forage between elk and livestock by not drawing livestock into crucial elk winter ranges in the Bench Corral and South LaBarge areas. This would not adversely affect livestock grazing.

The areas in which new waters are developed (Appendix D-5) would open the areas to livestock use and improve livestock distribution and use patterns. Livestock would be drawn from concentrated use areas around existing water sources into areas that presently receive light or little use. This would lower the utilization level around existing water sources.

Minimal short-term adverse impacts would occur to the vegetation during water facility and fence construction. Seventy-seven acres would be disturbed during the construction phase, but in the long term, this would be beneficial to the vegetation by controlling utilization patterns.

Manipulation of vegetation would increase forage production in the long term. In the short term after treatment the production would be lowered due to initial disturbance.

No impacts would occur in "M" and "C" allotments. They are expected to remain at or near their present condition and production.

The grazing system would be designed to improve the condition of the riparian areas. Livestock would be managed to improve riparian condition from poor to fair, or fair to good on "I" category allotments, and to maintain existing conditions of fair and good on "M" category allotments in the short term. The allotments with Colorado River cutthroat trout habitat would be given priority over other allotments with riparian areas. This would be slightly adverse to grazing in the affected allotments, in the short term.

Oil and gas activity would remove approximately 157 AUMs (1,375 acres) from forage production every 10 years in addition to the 540 AUMs (4,732 acres) already removed. In the short term, this would be an important impact on the allotments affected. In the long term, the impact would be lessened by reclaiming as much land as possible and reseeding the disturbed areas. Vegetation manipulation would be done in those allotments impacted to offset the acreage taken out of forage production.

The disposal of public lands allocated for grazing would have an adverse impact by reducing the amount of forage available (1,127 AUMs). This reduction is not significant throughout the planning area but may be locally important to an individual user.

The fencing of recreation sites would reduce the grazing AUMs in a minimal amount affected in allotments.

Allocating a portion of the unallotted public lands (20,991 acres) to grazing use would be addressed on a case-by-case basis. Livestock use would benefit over the existing situation.

The protection of the stock driveway areas from land disposals would be a benefit to grazing users and to overall livestock management. The integrity of the stock driveways would be maintained and termination of the withdrawals on the parcels no longer needed for stock trailing, would make these areas available for multiple use.

Conclusion

A net increase of about 2,636 AUMs of forage would be realized from the vegetation treatments in the "I" category allotments as approximately 50 percent of the forage would go to other resources such as wildlife and watershed. The allocation of AUMs in the "M" category allotments would be done on a case-by-case basis, and more than 50 percent may be allocated to livestock.

Implementation of AMPs would result in maintaining or improving range condition with an emphasis on managing riparian areas. New range improvement projects would be constructed on a priority basis, "I," "M," and "C" category allotments, respectively.

Wild Horses

The removal of all wild horses from the planning area would reduce the number of wild horse viewing areas in southwest Wyoming. Benefits derived would be reduced safety hazards, decreased property damage, and an increase in available forage for wildlife and livestock.

In the Desert HMA, removing wild horses would further reduce wild horse viewing areas. The Green River Resource Area would in turn consider amendment of its wild horse management program in the Little Colorado Desert. Alternatives for the management of wild horses south of the Pinedale Resource Area boundary fence may include: 1) No action or the maintenance of a wild horse population in the Figure Four Allotment; 2) Redefine the wild horse area to Eighteen Mile Canyon; or 3) Removal of all wild horses north of the Big Sandy River. Benefits derived from the removal of the Desert HMA wild horses include decreased wild horse management, greater accomplishment in the objectives for the Desert Common Allotment AMP, and increased winter forage for wildlife in the Reardon Canyon Allotment.

Forestry

Implementation of this alternative would result in approximately 66 percent (20,836 acres) of the conifer and 76 percent (11,583 acres) of the woodland acreage being subject to harvest level, harvest method, and equipment use restrictions. An additional 35 percent (9,141 acres) would be closed to all forest management activities. The management restrictions and preclusions would result in the following impacts:

> The projected 20-year harvest level of 2,810 acres (18.2 mmbf) would be approximately a 27 percent reduction from the current harvest level of 3,860 acres (25 mmbf).
>
> When compared to the current economic situation (refer to Affected Environment), impacts would include a reduction of approximately 25 to 30 percent in the economic factors associated with timber harvesting. In general, negative economic impacts (related to BLM-administered forest resources) in this alternative would be less than in Alternative C, but more than in Alternatives A and B.
>
> The annual mortality rate (commercial conifer only) would be increased by approximately three percent from a current level of 1.6 mmbf to a level of 1.65 mmbf annually, in 20 years.

The mortality rate would increase in the long term (20 years), over the existing situation and would accelerate over the long term by approximately three percent. Actual mortality rates may vary due to unexpected increases in insect or disease levels or other external factors such as fire. However, they would over time, correspond to the untreated acreage and therefore, should vary commensurately with the harvest projections.

Conclusion

Moderate impacts would occur to the forest management program, the forestry resource, and forestry socioeconomic values when compared to other alternatives. Specifically, this alternative would adopt a lower harvest level than Alternatives A or B to compensate for wildlife, watershed, and recreation resource requirements and it would adopt a higher harvest level than Alternative C to compensate for forest management requirements.

Visual Resources

The number of acres in visual Class I would increase by 5,356 acres with the inclusion of the Rock Creek drainage as a Class I area. The number of acres in visual Class II would decrease by 247,848 acres. The number of acres in visual Class III would increase by 240,117 acres. The acreage in visual Class IV would have a net gain of 2,375 acres.

The application of the no surface occupancy stipulation to 20,720 acres surrounding the ten elk feedgrounds would benefit these visually sensitive areas. The areas identified for no surface occupancy and no surface disturbance criteria application, in order to protect other resource values, would also protect visual resource values. Further visual protection would be afforded the Rock Creek ACEC by withdrawing that area from mineral location.

The application of the no surface occupancy stipulation to the developed and semi-developed recreation sites and implementing a no surface disturbance stipulation within one-quarter mile of these sites would provide needed visual protection to these heavily used and sensitive sites.

The restrictions placed on development activities to prevent erosion and to protect floodplains, wetlands, and riparian areas would, in most cases, protect visual resources. The development of a watershed/recreation plan for the Stuart Point-Mount Airy area would provide for needed visual mitigation for the proposed ORV use area.

The 98,552 acres proposed for vegetation manipulation would result in minor adverse impacts over the short term.

The proposed wildlife restrictions on timber harvesting would provide subsequent benefits to visual resources by maintaining a more natural appearance to timbered areas.

Livestock management practices designed towards improvement of riparian areas would benefit visual resources. Managing livestock grazing, which includes periodic removal of livestock from riparian lands, could also benefit sensitive visual resources.

The proposed forest management practices increase the potential for adverse impacts to the existing visual resources. The reduction of the riparian buffer area from 200 feet to 100 feet would allow logging activities closer to the visually sensitive areas along streams. The increased size of clearcuts from 13 to 40 acres increases the potential of the cut area being noticeable and obvious in the landscape. However, this also allows for more flexibility to change the shape and spacing of the cut to blend with natural openings.

No clearcutting in the Beaver Creek drainage and withdrawal from the timber base of the Rock Creek ACEC, the elk feedgrounds, and crucial elk winter ranges would reduce the conflict and potential adverse impacts to the visual resources in those areas.

The ORV designation of the majority of the planning area as "limited to existing roads and trails" would be compatible with the visual designations and, in some cases, would prevent the degradation of the visual quality resulting from new disturbance and roads.

The application of a no surface occupancy stipulation to identified cultural sites would help protect the visual sensitivity of those sites.

The avoidance of identified areas not suitable for linear rights-of-way would protect the sensitive visual resources in these areas.

Conclusion

The overall impact to the existing visual resources would provide protection to the sensitive viewsheds in the area and would provide a more accurate rating of the visual management needs.

The initiation of a program to improve the visual quality of the oil field areas would benefit the visual resources in those areas and in many cases would benefit other resources such as soil, watershed, and vegetation.

Off-Road Vehicles

The effect of additional winter ORV closures for elk is to close these areas to snowmobile use. These areas currently do not receive much snowmobile use. Some areas are being posted by the Wyoming Game and Fish Department under cooperative agreement with the BLM.

The closure of the deer and antelope winter ranges shown on Map 10 would add an additional 137,600 acres of land closed to ORV use from November 15 through April 30. Some of these areas currently are popular snowmobile use areas while others receive very little use. Much of the Mesa area receives moderate use by local residents primarily on weekends. The Mesa area is easily accessible from town by snowmobile and is used heavily in the afternoons as well as on weekends. Closure of this area would result in users shifting to the proposed open areas near the towns. There would be no loss in opportunity to participate in ORV recreation, however, there would be a shift in the type of opportunities available. There would be more opportunity for using concentrated use areas and less opportunity for unrestricted cross country travel. The opportunity for viewing the deer wintering on the mesa would be lost to the general public.

The Deer Hills and Oil Field deer winter ranges are also near populated areas and are easily accessible by snowmobile much of the winter season. These areas are used in a pattern similar to the Mesa area. The closure of these areas to winter use would result in the loss of popular public use areas.

The implementation of an ORV closure for 120 acres in the Holden Hill area, as shown on Map

10, would not noticeably affect ORV use since that area is included in the Miller Mountain elk winter range closure area from November 15 through April 30 which closes that area to snowmobile use. There is little other known ORV use in that area and therefore no conflict is identified with closing this area to ORV use.

The establishment of ORV open areas in the Mount Airy area near Pinedale and similar areas near Big Piney would benefit ORV users and provide a much needed public use area.

The designation of "limited to existing roads and trails" for public lands in the remainder of the area may pose conflicts in some areas; however, the density of existing roads and two-track trails provides access to essentially all of this area. The condition in the limitation definition which allows off-road use for necessary livestock management essentially allows for existing uses to continue, in most cases.

Recreation

The objective of managing for existing use and preventing resource damage would solve many of the current problems. Meeting the long-range needs of the public, and the utilization of the recreation resources would be pursued.

Withdrawing developed and semi-developed sites from mineral entry and livestock grazing (Map 8) and not allowing surface disturbance by oil and gas activities on the sites or surface disturbance within one-quarter mile are necessary to preclude potential safety hazards and incompatible uses.

The establishment of a 16-day camping limit throughout the area would have the beneficial impact by alleviating the long-term camping problems. It would also allow for "move-in, move-out" time and would be consistent with local Forest Service limitations.

The application of oil and gas leasing stipulations to not allow surface disturbing activities on developed and semi-developed recreation sites and to not allow surface disturbance within one-quarter mile of those sites would benefit those sites. Implementation of these stipulations is essential to public safety and necessary for the protection of the sites.

The application of leasing stipulations to protect wildlife would also benefit recreation because the highest recreational uses in the area (hunting and fishing) are directly tied to wildlife resources. The identified protection of crucial big game winter ranges, elk feedground areas, and sage grouse strutting grounds are essential to the protection of the wildlife populations, upon which much of the recreation use in the area is based.

The implementation of a no surface disturbance stipulation on oil and gas leases within the Upper Green River special recreation management area would have a beneficial impact on the high quality recreation values in this area. There are 12 semi-developed access points and camp areas in this 12-mile stretch of river which would be protected by means of this stipulation.

The identified actions to monitor and protect water quality would also benefit the recreation program by maintaining the high water quality in the area. The protection of riparian areas would also provide protection to the recreation uses in riparian areas.

The improvement of wildlife habitat through vegetation treatment of 16,000 acres may lead to increased wildlife populations which in turn may result in additional hunter days. The proposed treatment of an additional 98,552 acres for livestock management would also benefit wildlife and may result in a further increase in hunter days.

Hunter days and fishermen days would essentially continue at their current level or possibly increase which would be an important benefit to the local community. The wildlife management actions identified conflict with ORV uses but pose no conflicts with the other recreation programs.

The identified livestock management actions which would improve vegetation cover and forage for wildlife and give consideration to wildlife, watershed, wild horses, and recreation resources in the development of new range improvements would benefit the recreation program.

Allocating the portion of the unallotted lands that are in riparian areas to wildlife and watershed would be beneficial to the recreation program. This would provide additional wildlife habitat and potentially additional recreation user days.

The removal of the LaBarge and Desert wild horse herds would result in a loss of a recreation resource in the local area. No actual figures are available for wild horse "viewing days"; however, it is known that a number of local residents enjoy observing the wild horses especially in the LaBarge area. The removal of the LaBarge herd would eliminate the opportunity to view wild horses in an easily accessible area. The Desert herd is much more inaccessible and is viewed by far less people. The removal of this herd would not result in any significant loss of recreation use, because the viewing that takes place, for the most part, is incidental.

The management of timber resources to maintain current wildlife cover levels would benefit recreation because existing wildlife populations can be maintained and no change in hunter or recreation user days would be anticipated. The limitations on harvesting adjacent to the proposed Scab Creek wilderness would provide for the continued recreation uses and patterns while still allowing for adequate timber management.

Timber harvesting activities have a tendency to shift the recreation opportunities in an area from semi-primitive nonmotorized types of activities to those types of activities which occur in roaded natural settings. Hunting pressure generally increases due to increased road access, as do other ORV uses including recreational ORV use, firewood gathering, and similar activities. Most nonmotorized activities are reduced or displaced to other areas. The overall result is usually an increase in use and a change in the type of use.

The changes made in the visual management classes as shown on Map 9 would provide a more accurate description of the visual management program as it is being applied. There would be some benefit to the recreation program because the sensitive use areas would receive protection while still allowing for other appropriate uses to occur.

The establishment of the Rock Creek ACEC drainage as a Class I visual management area is consistent with previous decisions to not allow surface disturbing activities within that sensitive drainage. Benefits would be provided to the existing high quality nonmotorized recreation uses of the area.

The implementation of the proposed ORV restrictions proposed would primarily impact recreational ORV uses and are discussed in the ORV section. The impacts to other recreation uses are secondary and for the most part tied to wildlife populations. If big game populations are shown to increase due to establishing the identified ORV limitations, there may be increased hunter use and beneficial recreation impacts.

The establishment of ORV open areas in the Mount Airy area near Pinedale and similar areas near Big Piney would substantially increase the amount of use these areas receive. The type of use would change from being available for a variety of recreational uses to essentially one type of use. No significant impact or conflict has been identified with recreation by establishing this area; however, a more specific analysis would be completed prior to the actual establishment of this area.

The implementation of the limited to existing roads and trails designation for public lands in the remainder of the area may pose conflicts in some areas, however, the density of existing roads and "two-track" trails provides access to essentially all of this area. The condition in the limited definition which allows off-road use for "necessary tasks" such as livestock management essentially allows for existing uses to continue in most cases.

The implementation of the proposed cultural resource management actions would benefit the recreation program. The emphasis on development of management plans and emphasizing interpretive programs and historic features would result in increased public awareness and public use.

Recreation-related values would benefit by receiving a high level of priority in relation to protection when evaluating proposed rights-of-way and other realty actions. Public access needs and land exchanges for public benefit could be actively pursued and processed. This combined with the continued protection of existing recreation resources through avoidance areas and restricted areas would result in a higher level of use available for recreation purposes, fewer conflicts with landowners, and higher quality experience for the recreating public.

Cultural Resources

Overall, cultural resources would benefit from the implementation of the proposed management actions of other resource programs.

Restricting occupancy in crucial areas (Rock Creek, Scab Creek WSA); minimizing surface disturbance in critical watershed areas, especially riparian zones; and regulating grazing would benefit cultural resources.

A closed ORV designation in the Holden Hill area would have a beneficial impact to cultural resources; an open (summertime use) ORV designation in the Trapper's Point area (Pinedale) would have adverse impacts. Prior planning would reduce or eliminate this impact, however.

Implementation of the Historic Trails Management Plan may result in impacts to the trail resource by altering the physical condition of the trail due to increased visitor use. Secondary impacts, potentially significant, can occur due to vandalism and artifact collecting. These impacts are addressed in the Historic Trails Management Plan, which calls for monitoring the condition of, and impacts to, the trails.

Lands

Rights-of-way would be impacted as a result of increased costs due to the approximately 55,000 acres of recreation, cultural, and wildlife related avoidance areas, and additional restrictions on up to 665,000 acres. The resource restrictions described under other resources would also increase time delays and related costs.

This alternative would provide beneficial impacts by providing flexibility for acquisitions and disposals. Community expansion could take place if needed. Sales could be conducted as needed provided resource needs are met. Exchanges could result in the disposal of difficult to manage parcels and the acquisition of key access parcels or lands with resource values similar to the exchanged public lands.

The use of land after a sale may result in adverse impacts to soil, water, and air resources. However, local zoning and county, state, and federal regulations should minimize this impact. Disposal of land in wildlife habitat could adversely impact wildlife if the subsequent use destroyed habitat or affected wildlife during critical breeding, calving, and nesting areas.

Lands that are transferred to another agency for management are not expected to add a significant amount to their administrative costs. The public would benefit from improved management of the land remaining in federal ownership.

Recreation and public purpose (R&PP) lands generally provide land that is needed by the local community for public services development. The benefit/cost ratio of these actions can be favorable and, in many instances, is the only economically feasible way to proceed with a public project. Grazing and mineral interests may be adversely impacted because they are generally incompatible with R&PP projects.

Conclusion

Land tenure adjustment is expected to result in overall beneficial affects and improved management of the adjoining public lands and resources. Seasonal and other stipulations for rights-of-way result in costs to the right-of-way holder. These costs are expected to remain approximately the same percentage of total project costs as they are now.

Fire Management

The development of the fire management plan, management constraints for resources such as livestock management, wildlife, oils, watershed, forestry, or minerals would result in reduced suppression costs.

The development of AMPs and RAMPs would assist in development of objectives for the fire management areas.

Conclusion

Parameters would be defined that would allow for the use of fire as a management tool. The total acres burned under this alternative would be minimal. Oil and gas activity, AMPs, HMPs, and RAMPs would assist in planning for and executing fire management plans.

Fire impacts would be similar to Alternative A; however, over 400,000 acres would be subject to a prescription for wildlife resources. No adverse impacts are anticipated since burning of the maximum range of wildlife habitat type acreage, over the long term would be unlikely. Suppression costs would be similar to those in Alternative A. Additional restrictions would be applied to prescriptions. Reaching the limits of these prescriptions, which would initiate suppression type actions, is unlikely as indicated by past fire history.

Areas of Critical Environmental Concern (ACEC)

The management of the Rock Creek ACEC would not include boundary expansion.

Leasing the entire Rock Creek area with a no surface occupancy provision would allow the development of approximately 1.25 trillion cubic feet of CO$AF0032$RF003 and methane. Mineral accessibility would be by directional or off-site drilling, increasing costs greatly; thus, no impacts would occur to the ACEC.

Management objectives for the area surrounding the Rock Creek ACEC (Graphite elk winter complex) would provide for maintenance of the wintering elk herd.

Management actions would restrict mineral and forest resource development. No adverse impacts to the natural resources, particularly Colorado River cutthroat trout, aquatic habitat, and elk habitat would occur.

Management actions for the proposed Beaver Creek ACEC, would provide maximum protection for the Colorado River cutthroat trout and elk calving habitat for approximately 65 percent of these species habitat considered in Alternative C. However, the 1,000 foot restriction on clearcutting and road construction would continue to apply along the entire length of Beaver Creek. Monitoring of Colorado River cutthroat trout and elk calving would continue as in Alternative C to determine status of these species and to initiate any road closures to protect the fish or elk habitat. No adverse impacts would be be expected to the Colorado River cutthroat trout, aquatic habitat, or elk habitat.

Socioeconomics

Minerals Management

An economic analysis of minerals output is not attempted in this document beyond what is presented in Chapter 3, Affected Environment. While minerals output is assumed to increase over time, it is impossible with currently available data to ascertain forecasts on the nature and degree of output over time. Such forecasts are needed to perform long-term economic analysis. Minerals management and related minerals activities in the planning area are assumed consistent through all of the alternatives. Minerals impacts would not be a factor in selecting a final plan from among the various proposed alternatives. Nor would the alternative ultimately selected as the RMP meaningfully impact the economic outlook for area minerals over time. Appendix I shows the relative significance of minerals compared with other economic sectors.

Livestock Grazing

The 107,907 AUMs of grazing available annually in 1985 would increase to about 110,543 AUMs after 20 years.

The changes in available annual AUMs over time are assumed to translate into proportional changes in livestock grazing and in the number of cattle subsequently sold. Table 40 shows impacts in specific years on economic factors supported by livestock grazing and assumes that current technology and economic relationships relative to livestock management in the planning area would remain the same.

Output Revenue

The value of annual direct sales of the livestock grazing on BLM-administered lands would increase between two and three percent by 2005, as would related annual area output revenues. However, livestock-related output revenue from grazing on the lands administered by BLM currently represents less than six percent of total annual area output revenue, and it is not expected to exceed that percentage (USDI 1985b) over 20 years.

Personal Income

Annual area personal income would rise less than three percent. This increase would be realized by 2005. The increase would be less than one percent by 1995. Income from grazing on BLM-administered lands would continue to represent less than one percent of the resource area's total annual personal income yearly.

Employment

Employment supported by livestock activity on BLM-administered lands currently accounts for under 2 percent of total annual area employment and is not expected to exceed this level over 20 years. The rise in annual area man-year requirements is not expected to top five man-years by 2005.

TABLE 40

ECONOMIC FACTORS IMPACTED BY LIVESTOCK GRAZING ON BLM-ADMINISTERED LAND
(Preferred Alternative)

Subject	Unit	1985	1995	2005	Percent Change From 1985 1995	Percent Change From 1985 2005
Cattle Sold	Head	20,000	20,189	20,492	0.9	2.5
Direct Sales Revenue	$1,000	7,628	7,700	7,816	0.9	2.5
Related Area Revenue	$1,000	18,069	18,239	18,514	0.9	2.5
Personal Income	$1,000					
Livestock Sector		387	390	396	0.8	2.3
Related Area Total		1,830	1,845	1,873	0.8	2.3
Employment	man-years					
Livestock Sector		137	139	141	1.5	2.9
Related Area Total		208	210	213	1.0	2.4

Forestry

Socioeconomic impacts analyzed are based on an expected continuous average annual harvest level of 910 mbf. Of this total, 868 mbf represent sawlog harvesting. The remainder consists of posts and poles. The economic impacts are analyzed from two standpoints: timber harvesting and sawlog milling.

Timber Harvesting

Output Revenue. Annual timber harvesting would yield direct revenues of approximately $15,000 yearly, a decrease of between 25 and 30 percent from present levels. As a result, related total annual area output revenue would be about $17,000 less than current levels.

Personal Income. In 1985, personal income received directly by the timber harvesting sector from BLM-administered timber was just under $4,000, annually. This would decline to just under $3,000. Presently, contributions of BLM-administered timber harvesting to total annual area personal income is slightly over $6,000. This would decrease to less than $4,500.

Employment. Presently, about three-quarter of one man-year of employment per year can be attributed to BLM's annual timber harvesting activities. This would decrease to slightly less than 0.6 man-years.

Sawtimber Milling

This portion of the analysis is based on the average 10 percent of total BLM-administered sawlog volume normally processed yearly in the resource area.

Output Revenue. Annual direct revenues from sawlog sales of BLM-related timber processed in the planning area are estimated at roughly $40,000. This would decrease by about $10,000. About $90,000 of annual resource area output revenue presently is attributed to sawlog milling of timber from BLM-administered lands. This would drop to about $68,000 annually under this alternative.

Personal Income. Annual direct personal income from area sawlog milling of BLM-related timber would decline from around $9,000 in 1985 to $7,000, annually. In addition, the annual contribution to total area personal income from milling BLM-administered timber would decline from between $14,000 and $15,000 in 1985 to $11,000.

Employment. Currently, between one and two annual area jobs are dependent upon milling of BLM-administered timber. This would drop to roughly one job yearly.

Recreation

Consumptive recreation days spent annually on BLM-administered lands would increase slightly from the present level of about 48.8 million to just under 48.9 million by 2005.

Output Revenue. As the result of the expected rise in annual consumptive recreation days, annual output revenue derived from recreation activities is also expected to rise consequently by 2005. Annual revenues accruing directly to the recreation sector would rise above the 1985 level by less than 0.5 of 1 percent (roughly $8,000). As a result, total direct returns would remain at the present level of $2.6 million. The total contribution to annual resource area output revenues (direct, indirect, and induced) of consumptive recreation would be $16,000 higher by 2005, a rise of less than 0.5 of 1 percent.

Personal Income. By 2005, annual personal income realized directly by the recreation sector would rise by less than 0.5 percent from the 1985 level of $725,000. The area's total annual personal income supported by planning area consumptive recreation also is expected to increase by less than 0.5 percent, but should continue at the 1985 level of slightly over $1 million.

Employment. This alternative would have no discernable impact on the direct employment level recorded in 1985. The total man-year needs by all resource area economic sectors relative to planning area recreation activities would rise by only one manyear by 2005.

Summary

Output Revenue. Direct yearly returns from livestock and recreation vary over time but annual returns from forestry, although lower than current levels, are assumed to remain constant. Joint direct annual returns from livestock, forestry, and recreation climb above the $10 million level by $60,000 by 1995. By 2005, this annual increase would reach about $181,000. By comparison, sales to final demand by Sublette County, alone, total over $200 million yearly. Therefore, the projected increase in direct revenue would amount to less than 1 percent of the area's current total annual sales receipts from all sectors.

Livestock, forestry, and consumptive recreational activities on the planning area currently enhance total annual area revenues (direct, indirect, and induced) by slightly more than $23.4 million. This figure would rise to almost $24 million in 20 years. By comparison, annual area output revenues from all basic industries currently total between $300 and $400 million. Thus, increases resulting from this alternative would equal less than one percent of current annual area revenues.

Personal Income. Direct personal income attributable to livestock, forestry, and recreation activities would remain at about $1.1 million, over 20 years. Related total area income (direct, indirect, and induced) would remain at about $3 million. In 1983, annual area income from all sources totaled about $220 million.

Employment. Planning area livestock grazing, forestry, and consumptive recreation increased joint direct annual employment in these economic sectors by 228 man-years in 1985. This level would rise by about one man-year by 1995 and by three man-years by 2005. The corresponding total area employment impacts (direct, indirect, and induced) would provide a one man-year increase in total annual requirements by 1995 and a five man-year increase by 2005. Presently, livestock, forestry, and consumptive recreational activities on planning area lands support about 322 man-years of annual area employment. Total area employment currently is estimated at about 12,000 workers.

Short-Term Use Versus Long Term Productivity

The construction of major new sources of air pollution would be managed so that emissions would not reduce buffering capacities or adversely impact air quality related values in the nearby high elevation watersheds of the Bridger, Popo Agie, and Fitzpatrick Wilderness areas (Figure 3). The impacts to the natural environment from the emission of air pollutants would be short term in nature and not expected to result in any irreversible or irretrievable loss of resources.

The oil and gas resource would be well developed over the long term of this alternative. Tighter restrictions would discourage drilling by increasing costs, reducing available access, and reducing time available for drilling in some areas but to a lesser extent than Alternative C. A limited loss in royalty revenue would occur.

Oil and gas leasing in the Rock Creek land the Graphite elk wintering complex (expanded Rock Creek area) with a no surface occupancy requirement, would create a short-term impact on mineral development.

Initially, there would be an increase in sedimentation and salinity from road construction and other surface disturbing activities. Due to stabilization, this accelerated erosion would be reduced by 20 percent over the long term.

Wildlife habitat and forage for livestock grazing would be lost to surface disturbing activities. Soil displacement would also occur. The majority of this loss would be short-term because of requirements for reclamation. Some additional adverse impacts to wildlife would result from surface disturbing activities when big game would avoid an area where an activity is taking place, causing them to move to other areas. This impact is expected to be short-term for a particular activity but is expected to be taking place somewhere in the area during the next 20 years. Long-term surface disturbance would include 7,492 acres from oil and gas development activity.

There would be a limited amount of impact during the construction of range improvements in the short term; but in the long term, improved livestock management and increased productivity from vegetation manipulation would offset the short-term loss. The increased production from vegetation manipulation practices would be allocated to wildlife, watershed, and livestock respectively in the "I" category allotments with approximately 50 percent of the increased production going to livestock. This would be a long-term benefit to wildlife and watershed resources.

The removal of wild horses from the two areas would: 1) benefit livestock and wildlife in the long term, 2) eliminate the current disruption of livestock operations and management under the two AMPs, and 3) cause a short-term impact on the wild horses during the removal and relocation of the horses.

The implementation of the AMPs would have a beneficial impact in the long term as it would improve the range condition and improve the condition of riparian areas.

Adverse impacts would occur to timber management over the long term with a decline in productivity and a project mortality rate of 1.65 mmbf.

Vehicle use off existing roads would compact soil surfaces and increase erosion. This impact would be greatest in the "open" ORV area. The rest of the area would be designated "limited to existing roads and trails." In this part of the area similar impacts would occur from vehicle use off existing roads to perform necessary tasks associated with livestock grazing.

Conclusion

This alternative would have minimal impacts to soil, watershed, and wildlife. Important high potential oil and gas resources could be developed but with increased costs. Riparian areas would be stabilized and improved. Overall, range condition would improve, although livestock grazing would only gain approximately 2,636 AUMs. The annual timber mortality rate would increase to 1.65 mmbf. Recreation use impacts would be minimal. ORV uses would decline. Community expansion would be accommodated.

ALTERNATIVE A

The No Action Alternative provides for the continuation of current management. Existing trends and conditions would continue.

Based on the analysis and information provided in the previous chapters, no impacts would occur to wilderness values, natural history, paleontological resources, or locatable mineral values.

Air Quality

The BLM would endeavor to maintain air resource values or improve them where possible. The Bureau provides special stipulations for mining permits, leases, and other authorizations which protect air quality. Examples of stipulations would be covering of conveyors at a mine site to lower dust emissions, placing restrictions on the flaring of natural gas to reduce sulfur emissions, and restrictions on smoke emissions from prescribed burns. Stipulations are applied on a case-by-case basis, and a careful balance between protection of natural resources and economics is sought. As a result, there would not be any adverse impacts to the overall air quality of the area, although short-term impacts would be slightly lower than the Preferred Alternative.

Minerals

Restrictions on oil and gas exploration activities, to mitigate impacts to other resources, would generally increase operating costs of these activities.

Seasonal restrictions for leases on about 398,000 acres of crucial big game winter range would limit the time available for drilling activities and would impact the drilling of deeper wells. Many deeper wells, such as those in the Riley Ridge CO_2 project, require a year or more to drill and complete. Such wells would require either directional drilling from outside seasonally restricted areas or ceasing of drilling operations during the specified periods. Either of these requirements would increase drilling costs.

No oil and gas leasing within the Rock Creek ACEC would result in gas reserves (an estimated 1.25 trillion cubic feet) not being developed. Potential royalty and lease revenues would be foregone.

Restricting surface disturbance on about 1,100 acres of cultural sites and 585 acres of recreation sites would not create significant impacts because the individual areas are small.

Geophysical activity would be prohibited on about 19,000 acres. This would prevent the gathering of data over a large area resulting in subsurface interpretation problems and uncertainty about mineral potential. The acreage involved lies within overthrust terrain and adjacent to the Riley Ridge/LaBarge area where industry activity and mineral potential is highest.

Increased operational costs would be expected due to surface disturbance and seasonal restrictions and various vehicle use limitations.

Historically, there has been little interest in development of solid and locatable minerals (phosphate, coal, oil shale, gold, silver, and copper) and little is expected in the future. Therefore, there should be no impact to these mineral resources.

Development of salable minerals, e.g., sand, gravel, and moss rock, would have the greatest potential during the next 10 years, although minimal development is expected. No adverse impacts would occur as a result of the restrictions and limitations on development of these minerals.

Conclusion

Placing seasonal restrictions on 34 percent of planning area lands would increase costs for certain exploration and drilling activities on this acreage. Activities such as deep, long-term drilling would be impacted most.

Not leasing the Rock Creek ACEC would have adverse local and regional economic impacts if the potentially large gas reserve were undeveloped. Significant royalties would be foregone by the federal government.

Soils

Accelerated soil loss would occur due to mineral, livestock grazing, and timber activities.

Livestock grazing, surface disturbance, and ORV activity on riparian areas would continue accelerated streambank instability and erosion due to breakdown of high banks and loss of streamside vegetation.

In determining oil and gas exploration and development impacts, historic well data were used to identify current and future impact trends. Estimated short- and long-term cumulative impacts from oil and gas activities are summarized in Table 39.

While there would be surface-disturbance restrictions on steep slopes or in areas of known landslide potential, some development would occur in such areas resulting in slumping and accelerated soil loss which would be locally important but not significant. In areas of high landslide potential (Map D), the likelihood of construction triggering slippage would increase, especially on toe slopes. Soil displacement from landslides is permanent and not restorable, leading to irretrievable loss of soil and productivity. This would be locally important but not significant.

Generally, livestock grazing impacts to soils would be more extensive in allotments without AMPs due to the intensity of use and the lack of grazing systems. Adverse impacts would result from trampling of vegetation and soil material, soil compaction, and reduction or change in protective vegetation cover. Since these factors influence erosion rates and sediment yield, soil stability trends would continue to decline at present levels. Riparian areas (outside AMPs) would continue in a declining trend due to trampling, concentrated grazing, and early spring grazing. Wild horses would have similar impacts to the vegetation as livestock. Impacts, however, would be more localized since the horses occupy only a limited amount of the planning area.

Vegetation manipulation to enhance wildlife habitat would cause minimal localized short-term impacts to physical and chemical characteristics of soils, increasing erosion susceptibility through the loss of both ground cover and litter accumulation. Over the long term, vegetation would increase over pretreatment production levels which would minimize the erosion hazard. Beneficial impacts associated with wildlife habitat management would continue.

The lack of ORV designations throughout most of the area would result in localized adverse erosion impacts along trails and nonroaded areas. These impacts would be locally important, particularly in the spring when natural runoff is occurring and soil moisture levels are high.

The impacts associated with land disposal would continue to be dependent on any change in land use. Right-of-way development would cause accelerated erosion along pipelines, roads, and communication lines, especially in areas with high potential for landslides and critical erosion condition. These impacts would be important to the affected area but would not be expected to be significant throughout the planning area.

Conclusion

The most important impacts would be soil displacement and loss of soil productivity. These impacts would not be significant, and should be short term.

Watershed

Degradation to riparian areas, floodplains, and wetlands would occur from livestock grazing, minerals development, and ORV traffic. The result would be increased channel incision and increases in sediment and salinity. Perennial flows may be lost in some drainages since the water-holding capacity of the riparian areas would be reduced. This impact would be important to the individual drainages affected.

Disposing of lands with soils containing high amounts of sodium, for agricultural purposes, would result in unknown additional salinity contributions to the Green River drainage.

An increase in sediment and salinity in the Green River Basin would occur from surface disturbance, livestock grazing, and wild horse use in critical watersheds. The overall effect to the Colorado River drainage cannot be quantified but is not expected to be nationally significant.

Wildlife Habitat

Minerals

From 1979 to 1985, 2,102 miles of seismic lines were run within the planning area. The primary impact to wildlife has been increased activity and disturbance during critical winter, parturition, and nesting periods.

An estimated 17,672 acres would be disturbed during oil and gas development over the next 20 years. Based on a survey of disturbed acreage associated with producing wells in fields, an average of 16.5 acres per producing well were physically disturbed during initial development. This acreage included well site locations and facilities, local access roads and pipelines, field equipment buildings, and other facilities primarily associated with a producing field or group of wells. After reclamation, approximately 5.5 acres would remain disturbed. Using 5.5 acres of long-term disturbance per producing well, nearly 4,732 acres of cumulative disturbed surface (physical habitat loss) has occurred as a result of oil and gas development in the past. This figure does not include acreage disturbed by geophysical exploration, major transport pipelines, or acreage disturbed or occupied by communities and local infrastructures established or expanded primarily as a result of oil and gas industry development. For example, miles of bladed seismograph trails that have become permanent access roads.

The impact of oil and gas activities on wildlife habitat must consider the acreage that would be reclaimed. Some areas have been rehabilitated to provide as good or better habitat for wildlife than before disturbance occurred. Other rehabilitation efforts have been unsuccessful or have established habitat types of little value for wildlife. Limited rainfall, severe winter conditions, and poor soils make reclamation difficult. The length of time required to reestablish vegetation is increased by these environmental conditions. Except for roads and well pads (an estimated 7,500 acres), a cumulative total of 10,180 acres would be reclaimed and stabilized. An estimated 50 percent of the stabilized acreage would provide habitat comparable to predisturbance.

Loss of usable habitat and availability of security cover must also be considered. The extent and type of human activities are the most important factors in determining these impacts. Species involved, type of habitat, topography, and time of year also greatly influence the extent of these impacts. From 50 to 100 percent of the habitat value may be lost (Thomas 1983). Using information developed by Thomas, twice as much additional habitat would be lost through creation of behavioral avoidance zones as is lost physically (a conservative estimate).

Oil and gas development would remove approximately 7,500 acres of wildlife habitat from production on a long-term basis, impacting all wildlife species associated with the disturbed sites.

Mule deer winter range would receive the greatest impact, with 16 percent of crucial winter habitat affected. Severe winters during the last 10 to 15 years have been the controlling factor limiting population size. These relatively frequent winter kills have reduced population levels below current habitat carrying capacity (Johnson 1984). Assuming that population levels reach carrying capacity of the winter range, the reduction of available winter habitat (16 percent) would result in commensurate population reductions.

Nine percent of the crucial elk winter range would be adversely impacted during the next 10 years. Major impacts would be loss of forage and increased human activity. This would result in reduced populations or possible habitat abandonment. Habitat abandonment would probably occur with intensive field development, but would also result from the placement of an individual well in a key winter area.

Impacts to antelope winter habitat would be less severe than to deer habitat. Disturbance and activity are projected to impact only four percent of the crucial winter range. Due to the smaller amount of disturbance in critical winter ranges and the greater mobility of this species, population reductions would not be anticipated.

Because there is a significant amount of high-potential oil and gas deposits in the Pinedale planning area, important habitat losses could occur over the next few years. Habitat losses are expected to impact populations of big game animals, sage grouse, fish, and raptors. The result would be the displacement or even loss of an unknown number of animals.

Construction and maintenance of roads, well locations, and pipelines contribute to accelerated erosion. This accelerated soil movement results in increased sediment loading of streams and subsequently impacts aquatic habitat. Increased sedimentation into the Beaver Creek drainage would adversely affect the Colorado River cutthroat trout. Other streams would also receive increased sediment to the detriment of resident fish populations.

Vegetation Manipulation

Approximately 4,000 acres have been identified for brush treatment to benefit wildlife. Impacts from vegetation manipulation would be determined on a case-by-case basis through environmental analysis. Impacts would be short term in nature with improved habitat resulting in the long term. Therefore, beneficial impacts are expected.

Livestock Grazing

Impacts to wildlife from livestock grazing are occurring in riparian habitat; in elk winter ranges; and in mule deer, antelope, and sage grouse spring/summer habitat.

Riparian Habitat

Riparian condition currently declining would not improve. Further degradation of riparian condition would have an adverse impact on many wildlife species. Potential increases in sedimentation from activities in riparian areas would affect stream quality and the sensitive Colorado River cutthroat trout.

Elk Winter Range

Forage competition could occur where summer livestock use removes available forage before elk move onto crucial winter ranges. This results in a shortage of available winter forage for elk. Possible consequences include: lowered productivity and survival; movement of elk onto private hay meadows; and movement of elk to other native winter ranges in search of forage.

Mule Deer, Antelope, and Sage Grouse Spring/Summer Habitat

A reduction in the forb component of spring/summer habitat from season-long and(or) repeated spring grazing decreases habitat quality. This leads to lowered animal productivity and ultimately affects population levels.

Limited forage competition for forbs and early green grasses also occurs on these areas. As the percentage of forbs declines, competition for these species increases. Early green grass is especially important for mule deer as they leave the crucial winter range in search of nutritious forage. Cumulative impacts from these factors would lead to lowered animal survival and productivity.

Wild Horses

Impacts would remain at current levels as wild horse numbers would be maintained at 25 for the LaBarge herd and 50 for the Desert herd. A conflict for forage with mule deer in the Reardon Canyon and LaBarge areas would remain unresolved on crucial winter ranges.

Forestry

Impacts from timber harvest and precommercial thinning would decrease cover values on these areas. Forest cover would be reduced by 9.4 percent. The significance of this reduction would depend on the arrangements of the harvest acreage, the amount of human disturbance due to roads, and the availability of security cover. In the short term, wildlife populations would be displaced from these areas.

This alternative would lower elk habitat quality substantively. Timber harvest would occur in crucial elk winter ranges and adjacent to some elk feedgrounds further reducing habitat effectiveness on these sensitive areas. The direct loss of cover in these crucial areas not only lowers habitat effectiveness, but severely reduces the capacity to mitigate existing and future energy development which is projected to impact 9 percent of the crucial elk winter range. All of these factors combined greatly increase the probability of population reductions and(or) habitat abandonment of existing elk herds.

Impacts to the habitat of other species would not be significant. Those animals (e.g., pine martens, goshawk) dependent upon old growth forest conditions would not be affected because silvicultural prescriptions would include retention of mature and old growth trees.

ORV Activity

Impacts from ORV activities include disturbance to animals during seasonal stress periods and direct disturbance of habitat.

Increased human activity and disturbances during critical winter periods can result in adverse effects to wildlife. Animals are already under stress during these periods and further disturbance magnifies the possibility of detrimental impacts.

The following types of impacts to big game species would occur as a result of ORV activities:

1. Elk and moose winter range abandonment, resulting in increased depredation on private hay meadows.
2. Increased winter mortality for all big game species due to increased stress and subsequent energy expenditures.
3. Reduced animal productivity due to displacement of animals to lower quality habitat.

During milder winters, the impact of ORV activities would be greatly reduced by the increased mobility of wintering herds. The problem would be more acute during severe winters, when animals are confined to limited areas. As the population and subsequent recreational activity in the area increase, the problem would become more severe in those areas currently not under ORV restrictions. These types of impacts would continue to occur on Bench Corral elk winter range, mule deer and antelope winter ranges, and elk feedgrounds except Scab and Fall Creeks.

Degradation or direct loss of habitat would occur from the many two-track and hunter roads that are created each year. There are no data on the actual extent of this disturbance.

The primary impact to fish and wildlife from new roads caused by ORVs is the loss of habitat. Another impact is increased human activity caused by easier access to an area. Species avoidance of humans results in some highly productive habitats not being used. This avoidance behavior has been documented in elk, raptors, bears, bobcats, and many other wildlife species.

ORV use often accompanies oil and gas exploration and development. New pipelines and rehabilitated seismic lines are often used by the public as a new road. Reclamation efforts can be impeded by destruction of vegetation by ORVs.

Indirect degradation of aquatic habitat would result from increased erosion and sedimentation of stream bottoms.

Conclusion

Big game populations in affected winter ranges would be adversely impacted over both the short and long term.

Over the next 20 years, an estimated 17,672 acres would be disturbed by increased oil and gas development activity. Except for roads and well pads, reclamation or stabilization of disturbance would have occurred on 10,180 acres in 20 years. An estimated 50 percent of the stabilized areas would provide habitat comparable to predisturbance. The balance of disturbance (7,500 acres) would be out of production for the life of the well field (20 to 30 years).

Short-term and long-term productivity would be lost under this alternative. Areas in poor condition, particularly riparian areas, would remain in that condition causing a reduction in long-term soil productivity and vegetation losses.

Elk populations would be adversely impacted in both the short and the long term due to loss of crucial winter range, thermal and security cover, and probable population declines.

Livestock Grazing

Livestock concentration areas such as riparian areas would continue to be over-utilized by livestock causing long-term decreases in forage production and declining ecological condition on these sites. These distribution problems result from the lack of available water in unused areas, grazing use patterns of cattle, and disturbance activities such as oil and gas exploration which may cause livestock to move and concentrate in other areas.

Most areas presently being underutilized would remain so and those areas currently subjected to higher grazing pressure would continue to be more heavily utilized. In the "I" category allotments, a gradual decline in the range condition would result in an eventual decline in livestock grazing capacity. "M" and "C" category allotments would remain at or near satisfactory condition.

A decline in grazing condition would occur in the "I" category allotments not managed under a grazing system and which are grazed throughout the grazing season (spring through autumn). Over the long term, a decrease in productivity would occur. The allotments ("I" and "M" category) with implemented allotment management plans would remain in the same range condition.

The riparian areas would continue to be grazed heavily and their condition would continue to decline. Over the long term, the forage production would decrease and cause a decrease in grazing capacity.

Brush treatments would make forage available for wildlife but none would be allocated to livestock. Livestock would continue to graze these areas with no special management considerations, resulting in continued forage competition.

The wild horses in the Desert Common and North LaBarge areas would continue to compete with livestock for forage. The herd level in the Desert area would be set at 25 horses, requiring 300 of the available 9,337 AUMs be allocated to wild horses in the Desert Common Allotment. The herd level in the North LaBarge area would be set at 50 horses, requiring 600 AUMs from livestock use currently permitted to eight permittees in the North LaBarge Common Allotment. Allocating the 900 AUMs to the wild horses would result in a reduction in grazing preference for the permittees in the affected allotments.

The oil and gas industry has removed approximately 4,732 acres from forage production due to roads, well locations, and production facilities. Based on the assumption of continued disturbance at current levels (an average of 45 wells drilled per year), 646 acres (from roads, locations, and facilities) would be disturbed annually; 75 percent would be reclaimed over three years. In a 10-year period, the loss would remove 1,375 acres from forage production, in addition to the approximately 4,732 acres already lost to forage production for livestock use.

Most long-term impacts would be the loss of forage due to the construction of permanent roads, production facilities, and producing well locations. The disturbed areas would be reclaimed when no longer needed, mitigating the impact.

BLM participation in the Wyoming weed and pest program would result in moderately beneficial impacts to the livestock management program by removing undesirable weeds and encouraging growth of desirable vegetation.

Off-road vehicle use would continue to cause some conflicts, particularly harassment of livestock, and management problems caused by leaving gates open.

The disposal of public lands would have a detrimental effect on grazing permittees in the area through reduction of their federal grazing permits and loss of grazing use (228 AUMs) on the lands involved. Unless affected permittees are able to acquire the involved land or its use for grazing purposes, the forage allocation would be lost for their livestock. Realty actions such as Recreation and Public Purposes grants; rights-of-way; and excavations for sand and gravel would also result in loss of forage and reduce the forage base for livestock grazing.

The developed recreation sites at Scab Creek, Warren Bridge, and Green River campground areas would cause little if any disturbance to livestock.

Forage from unallotted lands (20,991 acres) would not be allocated, resulting in a slight adverse impact to livestock.

Disposal of areas utilized for stock driveways would preclude a continuous livestock access corridor and impact the grazing permittees that trail approximately 7,000 head of livestock to and from Forest Service and BLM-administered allotments. The permittees would have to utilize other means, such as trucking, to transport their livestock, which would be more costly.

Conclusion

Range condition would decline in all "I" allotments not administered by an allotment management plan. On "M" category allotments, the range condition would remain static or improve slightly. Since no new AMPs would be written or implemented, heavy use of concentration areas (e.g., riparian areas) would continue and their condition would continue to decline.

Wild Horses

Wild horses in the LaBarge Herd Management Area would be impacted by oil and gas activities which cause them to move from their designated use area (in North LaBarge Common Allotment) to the area north of Dry Basin. Such displacement would cause the wild horses to relocate adjacent to private lands where damage to hay crops and fences, and disturbance of domestic horses would continue to occur (USDI 1985b). This would contribute to conflicts and unobtained objectives in the existing AMP for the North LaBarge Common Allotment.

Wild horses would continue to be a traffic hazard in the North LaBarge Common Allotment as long as oil and gas activities continue. Past incidents have resulted in horses being killed or crippled by vehicles along the Calpet Road, LaBarge Creek Road, and Highway 189.

Wild horses would be managed under the existing South Desert-Figure Four Interim Wild Free-Roaming Horse Herd Management Plan. This plan calls for managing 25 wild horses in the Pinedale Resource Area and 75 wild horses in the Green River Resource Area. Regardless of the current plan, wild horses would continue to occupy areas other than the designated South Desert Pasture. The wild horses normally disperse to areas outside the designated area when water wells are turned off in mid-June, when the cattle are removed. These other areas would include the Alkali Draw Pasture and the Reardon Canyon Allotment where additional water and winter range are available. Incidental wild horse use would also be expected in the Sand Draw and Blue Rim Pastures. This would contribute to inconsistency and unobtained objectives in the existing AMP for the Desert Common Allotment.

Forestry

Approximately 10 percent of the forested acreage (3,110 acres of commercial conifer and 1,382 acres of woodland) would be affected by harvest level, harvest method, and equipment use restrictions. An additional 7,927 acres (6,622 conifer; 1,305 woodland) or approximately 17 percent of the forest area would be excluded from all forest management activities. Because Alternative A is a continuation of current management levels, there would be no change to harvest levels, the economic situation, and mortality rates. Therefore, no additional impacts would occur.

The current economic situation (described in Affected Environment) would remain unchanged under Alternative A. BLM timber management activities under this alternative would have the least net economic impacts. Alternative A would have a positive impact that would be less than Alternative B; however, these positive impacts would be greater than the negative impacts under the Preferred Alternative and Alternative C.

When compared to the other alternatives, however, impacts to the forest resource and to forestry-related socioeconomic values resulting from Alternative A would be moderately low.

The timber harvest levels would be 52 percent higher than Alternative C, 27 percent higher than the Preferred Alternative, and 33 percent lower than Alternative B. The projected mortality rates would be 6 percent lower than Alternative C, 3 percent lower than the Preferred Alternative, and 6 percent higher than Alternative B.

Conclusion

Alternative A would have a positive impact that would be less than the positive impact in Alternative B. The Preferred Alternative and Alternative C would have negative impacts.

The projected mortality rate of 1.6 mmbf would continue to create a current and long-term reduction in individual stand productivity and overall forest productivity. It would also be considered an unavoidable adverse impact, as would the lower socioeconomic values when compared to Alternative B. The loss of usable wood fiber associates with the 1.6 mmbf mortality rate would be an irreversible and irretrievable commitment of the forest resource. An additional irreversible and irretrievable loss of revenue would occur from the disposal of forested lands (refer to the lands alternatives and to the forestry section in the Affected Environment).

Visual Resources

Visual resource management classes would remain the same.

The current air quality monitoring program would benefit the visual resource management program by helping to monitor and protect the visibility in Class I and II visual management areas.

The adverse effects of oil and gas exploration and development and timber harvesting activities would be successfully mitigated. The cumulative effect of development activities in some of the Class II and III visual resource management (VRM) areas in the Overthrust area would result in lowering the VRM classification by one management class. The Class I area would not be affected. These impacts would not be significant to the entire planning area.

Continuation of only the few ORV restrictions or limitations would result in adverse visual impacts in some areas such as locally popular vehicle hill-climbing areas. Some of these would remain in conflict with the current visual management class.

Off-Road Vehicles (ORV)

Closing the 2,584 acres around the Scab Creek and Fall Creek elk feedgrounds to ORV use from December 1 to April 30 would not significantly affect ORV use. The area is relatively small, no conflicts have been identified with past closures in these areas, and there has been favorable public support in the past.

The closure of 118,543 acres in the Fort Hill-Miller Mountain and Graphite Hollow Elk Winter Range complex from December 1 through April 30 would conflict with snowmobile use; but, by providing snowmobile access across the area on a few designated routes, these conflicts would be minimal and would be insignificant.

The Rock Creek area which is closed to ORV use would result in an insignificant loss of snowmobiling opportunity.

Designating the ORV use in the Lake Mountain area as "limited" to existing roads and trails would not result in a noticeable reduction in ORV use.

Recreation

Existing recreation facilities would be maintained. Livestock grazing would continue on recreation sites.

The air quality monitoring program provides some benefits to the recreation resource by helping to maintain clean air values which attract recreation users to the area.

Some disruption of hunting use may occur in areas adjacent to oil and gas activity. In general, the hunting use is tied to wildlife populations, which are protected by wildlife stipulations and mitigating measures. Some traditional hunting areas may change due to the displacement of wildlife from development activities.

Other recreation activities such as fishing, picnicking, hiking, cross-country skiing, and snowmobiling would be impacted by the disruption of the natural scene. Increased access created by mineral exploration and other activities would also result in increased recreation use of the developed areas.

Recreation resources and values would benefit from surface-disturbance restrictions within 500 feet of live water and within the boundaries of the Upper Green River special recreation management area (SRMA). This protects most of the developed recreation sites in the area. However, those sites that are not adjacent to water would not be adequately protected.

The improvement and protection of wildlife habitat would maintain or improve hunting opportunities.

Livestock grazing in recreation sites would continue to cause increased loss of vegetation and soil and sanitation and safety problems.

Management of both the Desert and the LaBarge wild horse herds would provide opportunities for viewing of wild horses in two different types of areas. The LaBarge area is heavily roaded and easily accessible while the Desert area is more natural and inaccessible.

Forest management activities would have a slight adverse impact on the recreation resources or values since the recreation related impacts from forest management are tied to wildlife populations, primarily big game hunting. Impacts would be in the form of fewer hunter days as a result of a lower big game population level.

Timber harvesting activities have a tendency to shift the recreation opportunities in an area from semi-primitive nonmotorized types of activities to those types of activities which occur in roaded natural settings. Hunting pressure generally increases due to increased road access, as do other ORV uses including recreational ORV use, firewood gathering, and similar activities. Most nonmotorized activities are reduced or displaced to other areas. The overall result is usually an increase in use and a change in the type of use benefiting the recreation user.

Off-road vehicle closures and limitations would continue to limit conflicts with wildlife and some of the recreation use conflicts; however, numerous conflict areas still exist. The net impact to recreation would be adverse in that these conflicts would continue with no long-range direction for their reduction or management.

Identification and protection of significant cultural sites and features would continue providing benefits of public viewing and interpretive site opportunities.

The disposal or selling of 2,000 acres of the isolated parcels of land would have an adverse impact on recreation resources. In some cases public use is currently being made of these parcels through "informal" access or by asking permission for access. Some of these parcels have adjoining land owners who are willing to grant legal access. By selling these parcels to individuals, the opportunity to use them for future land exchanges, which would benefit the public, would also be lost.

The acquisition of the identified parcels would provide additional lands for public use and access to the proposed Scab Creek Wilderness Area.

Cultural Resources

Cultural resource impacts are discussed in Appendix J.

Restricting Surface occupancy in crucial areas (Rock Creek, Scab Creek WSA) would benefit cultural resources.

Since much of the resource area would not have ORV designations, the potential for impacts to occur to cultural resources would increase. This is primarily due to unrestricted access to these sensitive areas.

Implementation of the Historic Trails Management Plan may result in impacts to the trail resource by altering the physical condition of the trail due to increased visitor use. Secondary impacts, potentially significant, can occur due to vandalism and artifact collecting. These impacts are addressed in the Historic Trails Management Plan, which calls for monitoring the condition of, and impacts to, the trails.

Some adverse impacts would occur to cultural resources from surface disturbing activities and ORV activity. It is not known to what extent these impacts would occur, however they are not expected to be nationally significant.

Lands

The impacts associated with rights-of-way focus on basic increases in user/holder construction costs due to such factors as extended construction time frames and possible right-of-way location adjustments. Mitigation requirements and stipulations that are applied on a case-by-case basis to protect resource values would limit the use of public land and would cause higher costs and delays. Restricted areas would encompass up to approximately 636,000 acres. In some instances, the initial resource protection costs would be offset by decreased rehabilitation costs. Avoidance areas (up to approximately 49,000 acres) would increase costs due to lengthening of linear rights-of-way. This would not be so great in the Scab Creek area with a low potential for development, as it would be for the Rock Creek area which has undergone intense oil and gas production development.

Land uses after the disposal of public lands may result in adverse impacts to soil, water, and air resources. However, local zoning and state, and federal laws and regulations should minimize these potential impacts.

Recreation and public purpose (R&PP) lands generally would benefit the local communities. The benefit/cost ratio of these actions can be favorable and, in many instances, is the only economically feasible way to proceed with a public project.

Continued management under CMU classification would restrict disposal of public land in time frames which would respond to the public's needs. Management of these lands would not change much over time. Some disposal actions needed for community expansion would not take place, and in turn would create social and economic hardships to expanding cities and towns by either restricting or dictating their growth patterns.

Fire Management

The planning area would be divided into 12 fire management areas. A fire management plan would be developed detailing the prescription for each fire management option within the areas. This plan would describe the process by which resource managers would decide on which course of action to pursue under a wildfire situation, i.e., full suppression, limited suppression, or prescribed fire management.

The impacts to fire management would result primarily in the short-term until a fire management plan would be completed. During development of the fire management plan, management constraints from resources (e.g., air quality, minerals, soils, watershed, wildlife, livestock management, or forestry) would be considered in formulating the parameter in which fire would be utilized.

Conclusion

Parameters would be defined that would allow for the use of prescribed fire as a management tool. The total acres burned under this alternative would be minimal. Oil and gas activity, habitat management plans, and recreation area management plans would assist in planning for and executing fire management plans.

Areas of Critical Environmental Concern (ACEC)

No oil and gas leasing within the Rock Creek ACEC would result in gas reserves (an estimated 1.25 trillion cubic feet or approximately four percent of the Madison Reservoir) not being developed. Potential royalty and lease revenues would be foregone. There would be no adverse impacts to the ACEC from mineral development.

Management actions for the Rock Creek ACEC would restrict mineral and forest resource development. No adverse impacts to the natural resources, particularly Colorado River cutthroat trout, aquatic habitat, and elk habitat would occur.

Management actions in the Beaver Creek area could have some adverse impacts on elk calving. Unrestricted ORV activity and increased road construction and associated resource development, outside the 1,000 foot buffer along Beaver Creek, could adversely impact these resources.

Socioeconomics

Minerals

Same as impacts under the Preferred Alternative.

Livestock

Under this alternative, the 107,907 AUMs of grazing available annually on BLM-administered lands in 1985 would decline to approximately 100,357 AUMs in 20 years.

BLM-administered lands in the area annually provide forage for about 60,000 head of cattle, about one-third of which are marketed yearly. This translates into about $7.6 million in annual direct livestock sales and a subsequent $18 million of total area output revenue.

Over time, present management practices would result in less cattle using BLM furnished forage. This could result in a proportional decline in livestock marketed annually and a corresponding decline in receipts from livestock sales, income, area revenues, and employment as shown in Table 41. Table 41 depicts area economic factors supported by grazing on BLM-administered lands by year of occurrence and assumes that current technology and economic relationships relative to livestock management in the planning area would remain the same over the period of the analysis.

Output

In 1985, sales of cattle grazing BLM-administered land represented almost 40 percent of total area livestock sales. By 2005, this representation would drop to about 35 percent and to roughly one-third by 2035 relative to 1985 area totals. Contributions of the BLM portion of the livestock sector to total area output revenue were between 5 percent and 6 percent in 1985, but these would decline to about 5 percent by 2005, and between 4 percent and 5 percent by 2035 (USDI 1985b).

Personal Income

With regard to total area personal income, about 0.8 of 1 percent in 1985 resulted from livestock grazing BLM-administered lands. This would drop to 0.7 of 1 percent by 2035.

Employment

In 1985, between 1 percent and 2 percent of area employment was supported by the livestock grazing on BLM-administered land. This would be the same over the first 20 years; but, by 2035, this would decline to roughly 1 percent.

Forestry

Under existing management, annual socioeconomic impacts related to BLM timber management in the planning area are equivalent to impacts presented for forestry in the socioeconomic section of the Affected Environ-

TABLE 41

ECONOMIC FACTORS IMPACTED BY LIVESTOCK GRAZING ON BLM-ADMINISTERED LAND (Alternative A)

Subject	Unit	1985	1995	2005	Percent Change From 1985[1] 1995	2005
Cattle Sold	Head	20,000	19,300	18,601	(3-4)	(7)
Direct Sales Revenue	$1,000	7,628	7,361	7,094	(3-4)	(7)
Related Area Revenue	$1,000	18,069	17,436	16,804	(3-4)	(7)
Personal Income	$1,000					
Livestock Sector		387	373	360	(3-4)	(7)
Related Area Total		1,830	1,764	1,703	(3-4)	(7)
Employment	man-years					
Livestock Sector		137	132	128	(3-4)	(7)
Related Area Total		208	200	193	(3-4)	(7)

[1] Percent declines are shown in parentheses.

ment. These annual impacts are not expected to vary over time from those already specified for existing management.

Recreation

Presently, the area supports about 49,000 annual days of consumptive recreation with 78 percent attributable to hunter days and the remainder to fishing. Under existing management, consumptive recreation days are estimated to decline to roughly 48,000 by 1995 and 47,700 by 2005 (USDI 1985a).

Output Revenue

As the result of the anticipated fewer recreation days, by 2005, annual direct revenue derived from consumptive recreation would be about $63,000 under 1985, but would still top $2.5 million. Subsequently, total annual output revenues (direct, indirect, and induced) related to consumptive recreation on the planning area would drop to slightly under $5.2 million by 2005, down from about $5.3 million in 1985.

Personal Income

Annual personal income derived directly from consumptive recreation totaled between $700,000 and $800,000 in 1985. The annual 2005 level would be about $17,000 lower than in 1985, but still within the $700-800,000 range. The area's total annual personal income supported by consumptive recreation would remain at the 1985 level of slightly over $1 million through the year 2005.

Employment

By 2005, the area's total yearly employment needs relative to consumptive recreation on BLM-administered lands would decline below the 1985 level of 112 by only three man-years, a drop of less than 3 percent.

Summary

Output Revenue

Under existing management, sales related to BLM-administered forestry are assumed to remain at present levels over the duration of the planning period. However, the expected decline in AUMs available to livestock and wildlife over time under this alternative is assumed to translate into a proportional decline in livestock sales and also a drop in consumptive recreation days for the area. This, in turn, would translate into about $600,000 less in joint annual sales receipts from those sectors by 2005. By comparison, sales to final demand by Sublette County alone total over $200 million yearly. Therefore, this projected sales decline would amount to less than 1 percent of the area's current annual sales receipts (USDI 1985b).

Relative to 1985 totals, the subsequent total decline in yearly area output revenues resulting from the expected drop in livestock and recreation sales would amount to about three percent ($697,000) by 1995 and less than 6 percent ($1.4 million) by 2005. In 1985, overall area revenues supported by BLM-administered livestock, recreation, and timber jointly totaled about $24 million. By comparison, annual output revenues from all area sources currently are estimated to total between $300 million and $400 million. Thus, the annual revenue declines produced by existing management would be less than 1 ercent of the area's current total annual revenues from all sources.

Personal Income

Declines in livestock and recreation would also result in a decline in personal income. In 1985, the joint annual direct income from these activities on BLM-administered land totaled slightly over $1.1 million. By 2005, this joint annual income would drop to slightly over $1.0 million. This translates into a subsequent drop in related total area personal income from just under $3 million in 1985 to just over $2.7 million by 2005. By comparison, annual area income from all sources totaled about $220 million in 1983. Therefore, the drop in total annual area income ($154,000 in 2005) resulting from existing management would be expected to represent a small portion of related total area income in 2005.

Employment

Taken together, the livestock, forestry, and recreation on BLM-administered land supported 228 man-years of employment in 1985. However, only one man-year is currently attributed to forestry and this would be the situation over the next 20 years. Forestry and recreation jointly require six (2.6 percent) fewer direct man-years of employment annually by 1995 and 11 (4.8 percent) fewer by 2005. As this filters through the total economy, the total area would require nine man-years (2.8 percent) less by 1995 and 18 man-years (5.6 percent) less by 2005. Total area employment for all sectors currently is estimated to total over 12,000 workers. Therefore, the total impact of the expected decline in annual man-years of labor under existing management would be minor relative to total area labor requirements.

Short-Term Versus Long-Term Productivity

Impacts to air quality would be short term in nature, declining over the long term and would not result in any irreversible and irretrievable loss of resources.

Long-term minor adverse affects on oil and gas production would occur due to increased costs resulting from resource conflicts and restrictions. Some important reserves would not be developed in the long term.

No short-term impacts to solid leasable minerals (coal, phosphate, oil shale) are expected to occur. An undetermined amount of sand and gravel would be removed over the short and long term.

Wildlife habitat and forage for livestock grazing would be lost to surface disturbing activities. Soil displacement would also occur. The majority of this loss would be short-term because of requirements for reclamation. Some additional adverse impacts to wildlife would result from surface disturbing activities when big game would avoid an area where an activity is taking place. They would move to other areas. This impact is expected to be short-term for a particular activity but is expected to be taking place somewhere in the area during the next 20 years.

Grazing management on the allotments covered by the 11 AMPs would increase overall long-term soil productivity through better livestock distribution within the allotments. Minor short-term soil loss due to vegetation manipulation and construction of range improvements would lead to long-term increases in soil productivity through protection and improvement of surface cover (increased distribution and increases in grass species).

Continued ORV use in undesignated areas may lead to long-term losses in soil productivity in some areas.

There would be a 3 percent short-term increase in sedimentation and salinity from surface disturbance. With stabilization, this would be reduced by up to 20 percent over the long term.

In general, riparian zones would remain static in the short term, but the combination of livestock, grazing, surface disturbance and ORV activities would over time degrade to a lower condition class or, in some cases, cease to be productive.

Livestock concentration areas would decrease in condition and productivity in the long term because of the lack of grazing systems which would have distributed livestock use. This would eventually result in reduced grazing capacities on all "I" category allotments except the allotments presently covered by allotment management plans. The "M" and "C" allotments would not be adversely affected.

There would be continued long-term loss of forage due to continued oil and gas activity. The loss would be due to roads, well locations, and production facilities constructed or maintained. Reclamation of disturbed areas would not be complete as some roads would remain in place resulting in long-term forage reductions. Any land disposals, whether R&PP, direct sales, or Desert Land Entries, would result in loss of forage.

Alternative A would have a positive impact on forest resources over the long term. The projected mortality rate of 1.6 mmbf would create a long-term reduction in overall forest activity.

Restrictions on disposals would create impacts to communities in the long term by limiting expansion potential.

Full suppression would increase costs until a fire management plan is implemented. Implementation of a fire management plan would provide for management of fuel types resulting in a reduction in the potential for large scale wildfires in the planning area.

Conclusion

Important adverse affects would occur to vegetation and soils resources resulting in productivity declines. Riparian areas would decline in certain areas. Forage allocations would be reduced by more than 7,550 AUMs. Impacts would occur mostly in concentrated areas along the western portion of the planning area. Adverse impacts would occur to wildlife to the extent that animals would be displaced and populations could be reduced. The timber mortality rate would be 1.6 mbf in 20 years. Minimal impacts would occur to visual resources and ORV uses. Recreation impacts would result from wildlife impacts.

ALTERNATIVE B

Alternative B emphasizes resource development with provision for environmental protection. The analysis is based upon the actions described in detail in Chapter 2 Alternatives and the assumptions listed in Appendix B.

Based on the analysis and information provided in the previous chapters, no impacts would occur to wilderness values, natural history, paleontological resources, and locatable mineral values.

Air Quality

Air resources would be protected through cooperation with state and federal agencies. The Bureau would endeavor to maintain air resources values or improve them where possible.

Short-term air quality impacts would be slightly higher than Alternative A due to increased prescribed burning activities.

Minerals

Impacts from seasonal restrictions would be the same as Alternative A resulting in similar impacts. Of importance in this alternative is the opening of almost all lands to oil and gas leasing. Although the amount of open lands would increase by less than 1 percent over that open in other alternatives, the gas reserves made available in the Rock Creek area are important locally. Opening the 5,264-acre Rock Creek ACEC to leasing would allow development of estimated 1.25 trillion cubic feet of gas although more costly directional drilling would be required by the no surface occupancy mitigation.

Geophysical exploration would be open on all lands, although seasonal restrictions and vehicle use limitations imposed on these lands would increase costs.

The current phosphate, coal and oil shale withdrawals would be revoked. There are no known areas containing minerals of value identified, within these withdrawn lands, thus a revocation of these withdrawals would not be expected to create an adverse impact.

No impacts would occur to leasable minerals (coal, sodium, oil shale, phosphate) or locatable minerals (gold, silver, copper). Since there are no productive mining claims or mining operations, potential adverse impacts would not occur.

Development of salable minerals, e.g., sand, gravel, and moss rock, would have the greatest potential during the next 10 years, although minimal development is expected. No adverse impacts would occur as a result of the restrictions and limitations on development of these minerals.

Conclusion

The amount of acreage with seasonal restrictions applied (34 percent of the planning area) would be the same as in Alternative A. Therefore, similar increased costs for certain exploration and drilling activities would be expected.

The opening of all lands to exploration and development lessens impacts significantly because potential large gas reserves in the Rock Creek ACEC area could be developed.

No impacts would result from revocation of the existing mineral withdrawals.

Soils

Additional vegetation would be removed, or disturbed, through mineral development, increased grazing use, increased timber harvest, and prescribed burns than in Alternative A. This would tend to accelerate erosion and would cause a slight increase in sedimentation.

Management prescriptions for livestock grazing would ensure that riparian zones would remain in their present condition or improve. Vegetation treatment of 102,862 acres would accelerate soil loss in the short term. Soil loss would be stabilized in the long term. The removal of all wild horses would benefit the vegetation and soils resources.

Soil loss and chemical and physical damage would increase slightly over Alternative A.

Watershed

Some degradation to riparian areas would occur from minerals development, timber harvest, vegetation treatments, or ORV activities. The result would be increased channel incision and increases in sediment and salinity. Perennial flows may be lost in some drainages since the water-holding capacity of the riparian zones would deteriorate. This impact would be important to the individual streams involved but should be off-set by improved livestock grazing management.

A slight increase in sediment and salinity would occur within critical watersheds, since surface disturbance would occur in those areas. This impact would be less than in Alternative A.

Wildlife Habitat

Minerals

Oil and gas development would remove an estimated 7,500 acres of wildlife habitat from production on a long-term basis. This would impact all wildlife species associated with the disturbed sites and would be the same as described in Alternative A.

Vegetation Manipulation

Treatment could occur on 20 percent of the crucial mule deer, antelope, and sage grouse winter range, resulting in population reductions due to a reduction in winter range quality. Removal of forage and cover for these species which depend on sagebrush for survival would be highly detrimental, especially on winter ranges.

Treatment would also be allowed on 40 percent of the sage grouse breeding complex. This would be detrimental to sage grouse, resulting in population reductions due to removal of nesting cover. Nesting hens would be more susceptible to predators and eggs would be taken by coyotes, ravens, raccoons, or other predators prior to hatching.

Up to 40 percent of the remaining seasonal habitats could be treated. Manipulation of this large percentage of existing shrub communities would result in a reduction of habitat diversity and subsequently wildlife diversity.

In addition to the detrimental effects of large scale plant community conversions, long-term forage increases would be allocated to livestock. This would not resolve existing forage conflicts, and would add to the conflicts by increasing livestock numbers.

Livestock Grazing

Approximately 50 percent of the unallotted acreage is riparian habitat. Allocation of these riparian areas to livestock use would continue wildlife conflicts in the short term. Riparian condition would decline slightly in the short-term and have a slight adverse impact on many terrestrial and aquatic species, particularly the Colorado River cutthroat trout.

Forage competition between elk and livestock would increase. This would result in lowered productivity and survival of affected subpopulations of elk, movement of elk onto private hay meadows, and(or) abandonment of existing winter ranges in search of available winter forage elsewhere. The consequence would be a reduction in affected elk populations.

Livestock water developments could be placed in critical elk winter range resulting in increased forage competition between elk and livestock.

Continuous grazing with the primary emphasis on livestock production would result in decreased forage diversity and increased competition for early green feed. This would adversely impact sage grouse, mule deer, and antelope spring and summer habitat.

Long-term increases in forage would be allocated primarily to livestock. This would not alleviate existing livestock-wildlife conflicts, but would intensify these problems by adding additional livestock to compete for available forage.

Forest Management

Forest cover would be reduced 13.9 percent. The significance of this would depend on the arrangement of the harvest acreage, the amount of human disturbance due to roads, and the availability of security cover. An additional 1,200 acres of thinning is planned, which would reduce cover even more.

This alternative would significantly lower habitat quality below the limit of acceptability. Increased timber harvest would occur in crucial elk winter range, reducing habitat effectiveness on these sensitive habitats. The direct loss of cover not only lowers habitat effectiveness by itself, but severely reduces the capacity to mitigate existing and future energy development, which is projected to impact 9 percent of the crucial elk winter range. All these factors combined increase the probability of population reductions or abandonment of the range by existing elk herds.

The impacts to other species should not be significant. Those animals (e.g., pine marten, goshawk) dependent upon old growth forest conditions would not be affected because silvicultural prescriptions would include retention of mature and old growth trees.

The impacts to aquatic habitat and species should not be significant. Timber harvest and road construction in the Beaver Creek area pose a potential threat to the pure strain population of Colorado River cutthroat trout.

ORV Activity

The general impacts would be similar to those described for Alternative A.

The impacts resulting from ORV disturbance would continue on crucial deer and antelope winter range. The degree of impact is dependent upon the intensity of ORV use and the severity of the winter during the critical stress period. The potential for degradation of habitat through vegetation destruction and increased erosion would continue in unrestricted areas.

Conclusion

Same as environmental consequences to Alternative A.

Livestock Grazing and Vegetation

Additional forage production from vegetation treatments in the "I" category allotments would account for 13,797 AUMs. Of this increase, 11,751 AUMs would be added by 2005 to the annual grazing preference. The adjustment for forage lost to lands and oil and gas activities would be 2,046 AUMs. The land treatments in the "M" category allotments would create 7,622 AUMs of forage and these treatments would be financed by monies from permittees, other agencies, or state grazing boards. The acreage identified in "M" and "I" category allotments for treatment could be allowed to burn if a wildfire occurs and the fire falls within the prescription of the fire management plan for the allotment. These actions would benefit livestock grazing.

Intensive grazing management would be implemented to satisfy the growth requirements of the desirable forage species and would increase the kinds and amounts of desirable forage species.

The construction of water developments for livestock would promote improved livestock distribution on the allotments. Areas currently heavily utilized would have lower grazing pressure and would improve in range condition and forage production. The areas adjacent to water developments would receive heavy use by the livestock. Vegetation would be subjected to trampling, and soil compaction would occur on the areas adjacent to the water developments. Approximately 33 acres (about one acre for each facility) would be disturbed during the initial construction of water developments. This impact would be minimal.

Manipulation of vegetation would increase livestock forage quantity and quality. After a short-term reduction in vegetation, a long-term forage increase would result. Areas with vegetation treatments would generally be rested from livestock grazing for two growing seasons after treatment.

Some damage (about 55 acres) would occur to the vegetation during the construction of the fences and this would be short term and minimal.

The "M" and "C" category allotments would continue to be managed as they are under Alternative A. They are expected to remain at or near their present condition and production.

The existing range improvements would continue to be needed and used. These projects would be maintained by the livestock permittee in all but a few cases. These projects would continue to be reconstructed as the need arises.

The season of use problem would be addressed by implementing a grazing system to take into account the needs of the desirable plants. This would maintain or improve the condition and forage production.

The management of the riparian areas would be addressed in the design of the grazing system for the AMPs. The grazing system would meet the needs for the maintenance or improvement of the vegetation of the riparian areas.

Oil and gas activity would continue and would remove approximately 157 AUMs (1,375 acres) from forage production over the next 10 years. This would be in addition to the 540 AUMs (4,732 acres) (a reduction of approximately 4 percent of the AUMS in the allotments impacted) already removed from forage production. In the short term, this is important in the allotments impacted. The impact would be mitigated in the long term by conducting vegetation manipulation in the allotments to restore forage production and, if possible, increase it over the predisturbance level.

The disposal of public lands allocated for grazing would have an adverse impact by reducing the amount of forage available (AUMs). The land disposed of would result in a reduction in livestock AUMs in the allotment. This reduction (1,127 AUMs) is not significant throughout the planning area but may be locally important to an individual user.

The developed recreation sites in the planning area would cause little, if any, disturbance to livestock grazing. The small disturbance would be from roads and camp sites, which would be minimal.

The public lands which lie outside of grazing allotments (20,991 acres) would be made available for grazing use (2,396 AUMs). The land would be identified and permitted according to the grazing regulations. This would benefit livestock grazing.

The protection of the stock driveway areas from land disposals would be a benefit to grazing users and to overall livestock management. The integrity of the stock driveways would be maintained and termination of the withdrawals on the parcels no longer needed for stock trailing would make those areas available for multiple use.

Conclusion

An increase of up to 21,419 AUMs may be realized from vegetation manipulations. Approximately 11,751 AUMs would be added to the grazing preference in the "I" category allotments and the remainder would replace the 2,046 AUMs lost to surface-disturbing activities and Desert Land Entries. The implementation of new AMPs would result in maintenance or improvement of the range condition, forage production, and riparian areas.

Wild Horses

The removal of wild horses from the area would reduce the number of wild horse viewing areas in the southwest Wyoming region. This would not be a significant loss to the wild horse program. Benefits derived from the removal of wild horses from this area include reduced safety hazards, decreased property damage, decreased need for wild horse management, and increased available forage for wildlife and livestock.

In the Desert HMA, removing wild horses would further reduce wild horse viewing areas. The Green River Resource Area would in turn consider amendment of its wild horse management program in the Little Colorado Desert. Alternatives for the management of wild horses south of the Pinedale Resource Area boundary fence may include: 1) No action or the maintenance of a wild horse population in the Figure Four Allotment; 2) Redefine the wild horse area to Eighteen Mile Canyon; or 3) Removal of all wild horses north of the Big Sandy River. Benefits derived from the removal of the Desert HMA wild horses include decreased wild horse management, greater accomplishment in the objectives for the Desert Common Allotment AMP, and increased winter forage for wildlife in the Reardon Canyon Allotment.

Forestry

The impacts resulting from implementation of this alternative would be similar to those for Alternative A with the following differences:

> The projected 20-year harvest level (37.6 mmbf) would be approximately 52 percent or approximately 12.6 mmbf higher than the current harvest level. Alternative B would have the least adverse impact to timber harvesting related economic factors.
>
> The annual mortality rate would decrease from the current level of 1.6 mmbf per year to 1.5 mmbf annually in 20 years. This projection is based on an assumption that because Alternative B would harvest approximately 980 acres or 6 percent more of the conifer base than Alternative A, the mortality rate would experience an estimated 6 percent annual reduction at the end of 20 years.

Conclusion

With the highest harvest level projection of all alternatives (Table 11), Alternative B would create the least impacts to the forest resource and would project a lower timber mortality rate, and would create the highest socioeconomic values.

Visual Resources

The number of acres in Class I areas would increase by 956 acres. The number of acres in Class II would be reduced by 262,192 acres. The number of acres in Class III would increase by 165,099 acres and the number of acres in Class IV would increase by 96,138 acres.

Leasing the Rock Creek ACEC would allow increased potential for adverse impacts to visual resources. The application of the no surface occupancy stipulation to 20,720 acres (Table 3) surrounding the elk feedgrounds would benefit these visually sensitive areas.

The application of the no surface disturbance stipulation in crucial watersheds would benefit visual resource management because many of these areas are also visually sensitive areas.

The 186,000 acres proposed for vegetation manipulation would require VRM input and mitigation on a case-by-case basis. No important adverse impacts would occur.

An increased potential exists for adverse impacts to the existing visual resources from the timber management actions proposed in this alternative. The reduction of the riparian buffer area from 200 feet to 100 feet would allow logging activity closer to the visually sensitive areas along streams. The increased size of clearcuts from 13 acres to 40 acres would increase the potential of the cut being noticeable and obvious in the landscape in some cases. It would allow more flexibility in size of cutting units thus greater opportunity to make cutting units blend with natural slopes and sizes of openings. Increase in acreage size would also allow for a wider range in cutting unit sizes which could be more easily made to fit natural landscape features. Deleting the current practice of not allowing clearcutting in the Beaver Creek drainage may result in conflicts and adverse impacts to the high quality visual resources of that area.

The establishment of an ORV open area or play area in the Mount Airy area near Pinedale and possibly similar areas near Big Piney may result in conflicts and possibly adverse impacts to the visual resources in those areas. An overall benefit to the visual resources may occur by providing these areas and limiting the currently uncontrolled use that is occurring.

The application of a no surface disturbance stipulation within one-quarter mile of the Sublette and Lander Cutoff historic trail and established significant cultural sites would help to protect the visual sensitivity of those sites.

The management actions proposed in the lands section of this alternative would increase conflicts with visual resources.

Conclusion

The overall impact to the existing visual resources would be adverse because management prescriptions would allow for future projects and developments in areas where they are now in conflict, would reduce the level of visual mitigation required, and allow for long-term or permanent changes to the existing visual quality of those areas.

Off-Road Vehicles (ORV)

The addition of the Bench Corral elk winter range and the lands around the Franz, Finnegan, and North Piney elk feedgrounds to the existing winter closure areas would add an additional 41,555 acres to the existing 119,815 acres currently closed to ORV use from November 15 through April 30. The effect of this is to close these areas to snowmobile use. These areas currently do not receive very much snowmobile use and, in some cases, are being posted by the Wyoming Game and Fish Department under cooperative agreement with the BLM.

The establishment of ORV open areas near Pinedale and Big Piney, would benefit ORV users and provide a much needed public use area.

The implementation of the limited to existing roads and trails designation for public lands in the remainder of the area may pose conflicts in some areas; however, the density of existing roads and two-track trails provides access to essentially all of this area. The condition in the limitation definition which allows off-road use for necessary administrative uses such as livestock management essentially allows for existing uses to continue, in most cases.

Recreation

The development of additional sites would benefit the recreation program by providing for current needs and increased use. Withdrawing these sites and not allowing disturbance within one-quarter mile is necessary to protect them from other developments.

Continuing the 30-day camping limit on lands outside of developed sites would result in adverse impacts by allowing one party to monopolize a site at the exclusion of other legitimate users. It also encourages the occupancy of these areas by people working in the area and living in areas that are established for recreation users.

The application of stipulations to protect wildlife would also benefit recreation because the highest recreational uses in the area (hunting and fishing) are directly tied to wildlife resources. The identified protection of crucial big game winter ranges, elk feedgrounds areas, and sage grouse strutting grounds are essential to the protection of the wildlife populations upon which much of the recreation use in the area is based.

The implementation of a no surface disturbance stipulation on development activities within the Upper Green River special recreation management area would benefit the high quality recreation values in this area. There are 12 semi-developed access points and camp areas in this 12-mile stretch of river which would be protected by this stipulation.

The management of wildlife populations below current levels would have a compounding adverse impact on the recreation uses of the area. A lower wildlife population would in turn result in a lower recreation potential for hunters and fisherman. The quantity as well as the quality of the recreation experience in the Pinedale area would decline.

The allocating of an additional 2,396 AUMs would result in livestock grazing on 20,991 acres (currently unallotted) which would have an adverse impact on the recreation program. An estimated 40 to 50 percent of these lands are in riparian areas along the Green, New Fork, and East Fork Rivers and the numerous other streams in the area. Some of these areas are islands in the rivers. The use of these lands by livestock would result in the loss of valuable wildlife habitat upon which much of the recreation use is based.

The removal of the LaBarge and Desert wild horse herds would result in a loss of a recreation resource in the local area. No actual figures are available for wild horse "viewing days"; however, it is known that a number of local residents enjoy observing the wild horses especially in the LaBarge area. The removal of the LaBarge herd would eliminate the opportunity to view wild horses in an easily accessible area. The Desert herd is much more inaccessible and is viewed by far less people. The removal of this herd would not result in any significant loss of recreation use, because the viewing that takes place, for the most part, is incidental.

The forest management actions proposed would have an adverse impact on recreation because these actions would have adverse impacts on wildlife. The identified decline in wildlife populations would result in a loss of hunter days which is a loss of recreation use and opportunity.

The lowering of the visual management classes shown on Map 16 would have minor adverse impacts to the recreation program by allowing for development activities to occur in areas where they are currently incompatible. Specific recreation sites within these areas would, however, have their visual integrity protected and would not be impacted.

The implementation of the proposed additional limitations on ORV use would not have a significant impact on the current recreational use in these areas. The elk feedground areas are currently being signed by the Wyoming Game and Fish Department (under cooperative agreement) to limit ORV use. The Bench Corral area currently receives only a relatively small amount of use.

The establishment of ORV open areas would substantially increase the amount of use that these areas receive. The type of use would change from availability for a variety of recreational uses to essentially one type of use. No significant impact or conflict would occur with recreation by establishing this area; however, a more specific analysis would be completed prior to the actual establishment of this area.

The implementation of the limited to existing roads and trails designation for public lands in the remainder of the area may pose conflicts in some areas; however, the density of existing roads and two-track trails provides access to essentially all of this area. The condition in the limitation definition which allows off-road use for "necessary tasks" (e.g., livestock management) essentially allows for existing uses to continue.

Impacts to cultural resources would be the same as for Alternative A.

The granting of rights-of-way and land disposals would adversely affect recreation areas such as developed sites. This would result in the loss of some existing and potential recreation resources.

Cultural Resources

Additional impacts to cultural resources would occur due to the increased mineral activities.

Some impacts would occur to the historic trails as crossings are needed to provide access to developing areas.

The proposals for vegetation manipulation in this alternative would cause impacts to cultural resources because of the large acreages proposed for vegetation manipulation. These impacts are not expected to be significant.

Impacts to cultural resources would increase moderately due to increased grazing use and construction of range improvements.

A moderate increase in impacts to cultural resources would occur under the proposed forest management actions.

Increases in impacts to cultural resources would occur from erosion and artifact collection in areas designated as open to ORV use, but is not expected to be significant.

The proposed avoidance areas for rights-of-way would decrease potential impacts to cultural resources.

Lands

The impacts to rights-of-way would remain similar to those described in Alternative A although slightly reduced due to the approximate 43,000 acres identified as avoidance areas.

More opportunity for land acquisition and disposal actions would exist with the revocation of the CMU classifications. This alternative is considered beneficial due to the greater management flexibility with land action implementation. Sales and exchanges could be allowed to enhance community expansion and manageability of public lands could benefit through exchanges. Exchanges could result in trading isolated or difficult to manage parcels for more desirable areas to meet resource and access needs. Approximately 8,000 acres have been identified for exchange. The parcels identified for disposal by sale contain approximately 6,300 acres which if disposed of would no longer be managed by BLM. Except in the cases of community expansion, resource uses of the land would probably remain the same. The public would not have to support management of lands to which they do not have access.

The use of the land after a sale may result in adverse impacts to air resources, soil, and water. However, local zoning and county, state, and federal regulations should minimize this impact. Disposal of land in wildlife habitat could adversely impact wildlife if the subsequent use destroyed habitat or affected wildlife during critical breeding, calving, and nesting areas.

Lands that are transferred to another agency for management are not expected to add a significant amount to administrative costs. The public would benefit from improved management and would retain the benefit of the land remaining in federal ownership.

Benefits derived from R&PP actions would be the same as in Alternative A.

Conclusion

Land tenure adjustment is expected to result in overall beneficial affects and improved management of the adjoining public lands and resources. Seasonal and other stipulations for rights-of-way result in costs to the right-of-way holder. These costs are expected to remain approximately the same percentage of total project costs as they are now.

Fire Management

Fire impacts would be similar to Alternative A; however, over 400,000 acres would be subject to a prescription for wildlife resources. No adverse impacts are anticipated since burning of the maximum range of wildlife habitat type acres over the long term would be unlikely. Suppression costs would be similar to those in Alternative A.

Areas of Critical Environmental Concern (ACEC)

Opening the 5,264 acre Rock Creek ACEC to leasing would allow development of approximately 1.25 trillion cubic feet of gas depending on reservoir extent. Leases would be issued with the no surface occupancy stipulation and therefore impacts would be minimal.

Socioeconomics

Minerals Management

Same as impacts under the Preferred Alternative.

Livestock Grazing

Under this alternative, the 107,907 AUMs of grazing available annually in 1985 on BLM-administered lands would rise by 11,751 AUMs to about 119,658 by the year 2005.

The increase in available AUMs over time is assumed to translate into a proportional rise in the number of livestock grazing BLM-administered lands and those subsequently sold. Table 42 shows impacts in specific years on economic factors supported by livestock grazing on BLM-administered lands and assumes that current technology and economic relationships relative to livestock management in the planning area would remain the same over the period of this analysis.

Output Revenue

Direct sales from livestock grazing on BLM-administered land would rise from $7.6 million in 1985 to almost $8 million by 1995, and to roughly $8.5 million by 2005. This would cause annual area revenue in 1995 to be between $700,000 and $800,000 higher than 1985 revenue. Annual area revenue in 2005 would surpass 1985 revenue by approximately $2 million. By 2005, revenue related to BLM-administered grazing would equal roughly 6 percent of total area revenue, an increase of about 0.5 percent over 1985 revenue.

Personal Income

As a result of BLM-administered grazing, personal income in the livestock sector by 1995 would increase over 1985 income by 4 percent ($16,000) and by 11 percent ($42,000) by 2005. The subsequent increases in total area income for 1995 and 2005 would be in the same proportion ($76,000 and $199,000, respectively). However, over 20 years, livestock supported income would continue to equal less than 1 percent of total area personal income.

Employment

Employment would increase 4 percent by 1995 (6 man-years) and 11 percent by 2005 (15 man-years). The total area impact would result in an increase of 8 man-years of employment by 1995 and 22 man-years by 2005. In employment for all sectors, man-years supported by planning area livestock activity would continue to represent not more than 1 to 2 percent of total area employment during the period of the analysis.

Forestry

Socioeconomic impacts are based on an expected continuous average annual harvest level of 1,885 mbf over the next 20 years. Of this total,

TABLE 42

ECONOMIC FACTORS IMPACTED BY LIVESTOCK GRAZING ON BLM-ADMINISTERED LAND (Alternative B)

Subject	Unit	1985	1995	2005	Percent Change From 1985 1995	Percent Change From 1985 2005
Cattle Sold	Head	20,000	20,847	22,178	4.0	10-11
Direct Sales Revenue	$1,000	7,628	7,951	8,459	4.0	10-11
Related Area Revenue	$1,000	18,069	18,834	20,037	4.0	10-11
Personal Income	$1,000					
Livestock Sector		387	403	429	4.0	10-11
Related Area Total		1,830	1,906	2,029	4.0	10-11
Employment	man-years					
Livestock Sector		137	143	152	4.0	10-11
Related Area Total		208	216	230	3-4	10-11

1,798 mbf represent sawlog harvesting. The economic impacts are analyzed from two standpoints: timber harvesting and sawtimber harvesting.

Timber Harvesting

Output Revenue. Annual timber harvesting from BLM-administered land would yield direct revenues of between $31,000 and $32,000 yearly, an increase of approximately 50 percent from present levels. As a result, related total annual area output revenue would surpass present levels by $30,000. Timber harvesting on BLM-administered lands presently contributes about $61,000 annually to total area output revenue.

Personal Income. At present, personal income received directly by the timber harvesting sector from activity on BLM-administered land is just under $4,000, annually. Subsequently, total area personal income is enhanced about $6,000 per year by activities related to timber harvesting. Under this alternative, these annual figures would be about 50 percent higher during the analysis period.

Employment. Presently, less than one job per year in the planning area can be attributed to timber harvesting activities on BLM-administered land. This would rise to slightly over one job annually.

Sawtimber Milling

This portion of the analysis is based on the average 10 percent of total planning area sawlog volume normally processed yearly in the resource area.

Output Revenue. Current direct revenues from sawlog sales of BLM-related timber processed in the area are estimated at roughly $40,000. This would rise to over $63,000 under this alternative. About $90,000 of total area output revenue presently is attributed to sawlog milling of timber from BLM-administered lands. This would be about $53,000 higher annually under this alternative.

Personal Income. Annual direct personal income from area sawlog milling of BLM-related timber would rise from around $9,000 in 1985 to almost $15,000 annually. In addition, sawlog milling annual contribution to total area personal income would rise from the current $14,000 to $15,000 level to $23,000.

Employment. Currently, between one and two annual area jobs are dependent upon milling of sawlogs from BLM-administered timber. This would rise to between two and three annual jobs.

Recreation

Consumptive recreation days spent annually on BLM-administered lands would drop from the present level of about 48.8 million to just under 46.6 million by 2005.

Output Revenue

As the result of the expected drop in annual consumptive recreation days, annual output revenue derived from recreation activities is also expected to decline. Annual revenues accruing directly to the recreation sector from activities on BLM-administered land would decline five percent from over $2.6 million in 1985 to roughly $2.5 million by 2005. Subsequently, the total contribution to annual output revenues (direct, indirect, and induced) of this consumptive recreation would drop to slightly over $5 million in 2005 from roughly $5.3 million in 1985.

Personal Income

Annual personal income realized directly by the area's recreation sector from consumptive recreation on BLM-administered land would decrease by about five percent ($35,000) to between $600,000 and $700,000 by 2005. Subsequently, total annual area personal income (all economic sectors) supported by the consumptive recreation would decline $51,000 below the 1985 level, but would still total roughly $1 million per year.

Employment

Annual consumptive recreation on BLM-administered land currently adds about 90 man-years to annual labor requirements of the recreation sector. This alternative would reduce this annual need by four man-years by 2005. The total man-year needs by all area economic sectors relative to recreation activities on the planning area would decrease from 112 in 1985 to about 107 in 2005.

Summary

Output Revenue

Direct yearly returns from livestock and recreation vary over time but returns from forestry, although higher than current levels, are assumed to remain constant over the analysis period. While livestock sales returns related to grazing on BLM-administered land rise, corresponding returns from consumptive recreational activities decline. As a result, joint direct returns from livestock, forestry, and recreation reach a high point about 17 years into the planning period and then decline slowly for the remaining 3 years (USDI 1985b). Direct joint annual returns, which were about $10 million in 1985, are expected to climb $200,000 to $300,000 in 10 years, and be $700,000 to $800,000 higher in 20 years. By comparison, sales to final demand by Sublette County, alone, total over $200 million yearly. Therefore, the above projected joint increases would amount to less than 1 percent of the current total annual sales receipts.

Livestock, forestry, and consumptive recreational activities on BLM-administered land currently enhance total annual area revenues (direct, indirect, and induced) by between $23 and $24 million. This figure would rise to over $25 million in 20 years. By comparison, annual area output revenues from all sources currently total between $300 and $400 million. Thus, increases resulting from this alternative would equal less than one percent of current annual area output revenues.

Personal Income

Direct personal income attributable to livestock, forestry, and recreation activities on BLM-administered land would remain at about $1.1 million over the analysis period. Related total area income (direct, indirect, and induced) would remain at about $3 million. In 1983, annual area income from all sources totaled about $220 million.

Employment

Livestock grazing, forestry, and consumptive recreation on BLM-administered land increased joint direct annual employment in these economic sectors by 228 man-years in 1985. These annual man-year needs would be five man-years higher in 10 years and 12 man-years higher in 20 years. The resulting total area employment impacts would be 322 man-years in 1985 and would climb to 340 man-years in 20 years. Current annual area employment is estimated at about 12,000 workers.

Short-Term Versus Long-Term Productivity

The impacts to air quality would be short term in nature. There would be no long-term impacts to air quality.

Long-term benefits to oil and gas resource development would result because fewer land closures would encourage exploration and drilling, potentially resulting in the location of increased reserves with a resulting increase in federal royalty income.

Soil movement would increase over the short term due to development, grazing, and vegetation treatment activities. The implementation of AMPs to enhance livestock distribution would decrease soil impacts from livestock grazing in the long term.

Initially, a 3 percent increase in sedimentation and salinity would occur from surface disturbance activities. Sedimentation and salinity contributions caused by accelerated erosion would be reduced by up to 20 percent over the long term.

In general, riparian zones would remain static in the short term, but with time some could improve to a higher condition class due to improved livestock grazing practices. Riparian zones impacted by surface disturbance activities, timber harvest and ORV activities, would decline in productivity. Impacted riparian areas are expected to be small in number but could be locally significant. Sedimentation in the Beaver Creek drainage would increase slightly over the long term.

The short-term vegetation loss due to various development activities would be mitigated by reclaiming the disturbed areas and reseeding them with a desirable seed mixture that fits the area.

Wildlife habitat and forage for livestock grazing would be lost to surface disturbing activities. The majority of this loss would be short-term because of requirements for reclamation. Some additional adverse impacts to wildlife would result from surface disturbing activities when big game would avoid an area where an activity is taking place. Particularly, wintering mule deer and antelope, AUMs of use and remove the competition for the forage between the wild horses wildlife and livestock.

In the long term, impacts to timber management would be similar to Alternative A except mortality losses would be six percent lower.

There would be a short-term visual impact from the implementation of vegetation manipulation projects. These impacts would decline in the long term.

Lower wildlife populations would result in a lower recreation potential. Licensing the unallotted lands in riparian areas would adversely impact recreation use in these areas. The proposed increased timber harvesting would result in reduced big game populations and a loss of hunter days. Continuing the 30-day camping limit would result in a loss of quality recreation use by impacting sites and allowing for residential type use.

Short-term cultural impacts would continue as development continues. Area wide, these impacts are not expected to be significant; however, they may significant to an individual site. The historic trails would have increased intrusions.

Conclusion

Important mineral resources would be developed. Vegetation and soils impacts would be slightly greater than in Alternative A. Some adverse impacts to riparian areas from surface-disturbing activities, timber harvest, and ORV activity would be offset by improved grazing practices. Overall there would be an improvement in range condition and forage production with an overall increase of approximately 12,000 AUMs. Adverse impacts to wildlife would increase slightly over Alternative A. The timber mortality rate would decline by 6 percent annually. Visual management classes would have lowered classifications overall. Recreation uses would be impacted at a slightly greater level than in Alternative A. Users of ORVs would benefit. Community expansion would be accommodated by the availability of additional parcels for disposal.

ALTERNATIVE C

Alternative C emphasizes resource protection and limits some resource uses and development activities. The following analysis is based upon the assumptions described in the beginning of Chapter 2 and the assumption and analysis guidelines in Appendix B.

Based on the analysis and information provided in the previous chapters, no impacts would occur to wilderness values, natural history, paleontological resources, and locatable mineral values.

Air Quality

Air resources would be protected through cooperation with state and federal agencies. BLM would endeavor to maintain air resources values unless there are available actions which can be applied to improve them. The impacts to air quality would be the same as for the Preferred Alternative.

Minerals

The application of seasonal restrictions on 180,680 acres of non-crucial big game winter range would increase, by 15 percent, the amount of the area falling under these restrictions. As discussed in Alternative A, costs would increase substantially with directional drilling or drilling suspension during the restricted time.

Impacts would be minimal from the application of the no surface occupancy mitigation to cultural and recreational sites due to the small areas involved in each site.

Not leasing the Rock Creek ACEC would preclude development of an estimated 1.25 trillion cubic feet of CO_2 and methane gas.

Deferring leasing in the expanded Rock Creek ACEC would cause displacement of activities and prevent mineral access until the management plan was completed. Administration of the Beaver Creek ACEC to protect the Colorado River cutthroat trout would limit accessibility somewhat. However, full development of the fluid minerals resource could be accomplished and impacts would be minimal.

The closure of approximately 5,264 acres to geophysical activity as well as the additional seasonal stipulations would result in increased costs and would prevent the gathering of data in areas of high oil and gas potential such as the Rock Creek area.

The current phosphate, coal, and oil shale withdrawals would be revoked. There are no known areas of mineral value identified within these withdrawn lands, thus a revocation of these withdrawals would not be expected to create an adverse impact.

Development of salable minerals, e.g., sand, gravel, and moss rock, would have the greatest potential during the next 10 years, although minimal development is expected. No adverse impacts would occur as a result of the restrictions and limitations on development of these minerals.

Conclusion

The application of seasonal stipulations on 15 percent more area acreage than proposed in Alternatives A and B (51 percent of the planning area) would be the most restrictive of the alternatives and would increase the expense of certain exploration and drilling activities over a larger part of the planning area.

Not leasing the Rock Creek ACEC and deferring drilling in the expanded Rock Creek ACEC area closes approximately 5,000 acres permanently and 11,000 acres, at least temporarily, to exploration and drilling. A part of this area is highly prospective for deep gas and some areas have been proven productive.

No adverse impacts would result from revocation of the existing mineral withdrawals.

Impacts adverse to oil and gas activities would be greatest under this alternative.

Soils

Logging, logging residue disposal (slash burning), range improvement construction, watershed projects, and prescribed burning would all tend to remove vegetation and increase soil disturbance, soil loss, compaction, and loss of soil productivity at least for short periods. The amount of soil loss would be reduced from Alternatives A and B and would be offset by limiting logging, managing livestock grazing, and increasing vehicle travel limitations and special management of sensitive watersheds.

Sedimentation contributions into streams would decrease due to displacement of activities outside these crucial areas.

Grazing practices initiated to improve the riparian zones would result in a decrease in stream sedimentation. The implementation of grazing systems would improve distribution, and reduce trampling and soil disturbance. Soil resources would benefit by not allotting 20,991 acres to livestock grazing use.

Increased wild horse use in the Desert Herd area would affect soils through trampling and removal of vegetation by grazing. The impacts would be localized to areas surrounding water and mostly within two allotments. The removal of the wild horses from the LaBarge area would benefit soils by reducing trampling, reducing compaction around water sources, and reducing removal of vegetation from grazing.

The development of AMPs would result in long-term beneficial impacts to soils. Short-term soil loss would occur due to initiation of new range improvements including vegetation manipulation. Soil loss would decrease in the long-term due to increased vegetation cover and improved livestock distribution.

Logging would continue to contribute to soil loss and sedimentation; however, due to additional restrictions these losses would decrease from Alternative A.

Avoidance areas for rights-of-way would reduce the potential for accelerated soil loss.

Conclusion

The impacts of soil loss and chemical and physical damage would decrease slightly from Alternative A.

Watershed

Restricting desert land entries (DLEs) would prevent increases in sedimentation and salinity. The impacts to riparian areas, floodplains, and wetlands would be reduced as a result of controlled grazing and salting practices, reduced and mitigated minerals development, and ORV traffic restrictions. Sedimentation and salinity contributions caused by accelerated erosion would be reduced by up to 20 percent over the long term.

Not allocating 20,991 acres for livestock grazing use would reduce the potential for increased sediment contribution from grazing.

Avoidance areas for rights-of-way would have a beneficial impact on watersheds by localizing and limiting removal of vegetation cover.

Based on this analysis, a decrease in sediment and salinity would occur from minimizing surface disturbance and implementing two watershed management plans, resulting in minor adverse impacts to watershed resources.

Wildlife Habitat

Minerals

Impacts from oil and gas activities would be the same as described in Alternative A. However, impacts to wintering wildlife would be reduced in intensity. Seasonal use restriction on 578,850 acres of big game winter range would help mitigate the effects of disturbance to antelope, elk, moose, and mule deer. Stipulations would be attached to leases on 180,680 acres of noncrucial winter range that were not included in Alternatives A and B. The addition of ORV constraints and limiting oil and gas production activities would reduce the amount of human activity and subsequent loss of habitat effectiveness.

Vegetation Manipulation

Vegetation treatment acreage (approximately 98,000 acres) represents approximately 13 percent of the sagebrush that meets the treatment criteria (25 percent canopy cover). All of the crucial mule deer, antelope, and sage grouse winter habitat would be excluded from vegetation treatment unless wildlife would benefit. A maximum of 20 percent of the sage grouse breeding complex and other seasonal habitats could be manipulated through vegetation treatment. Elk winter range improvement would be allowed on up to 40 percent of the designated area. Based on the prescriptions applied to vegetation manipulation, most of these actions would prove beneficial to most wildlife species.

Long-term forage increases would be allocated to wildlife as first priority. This would resolve many existing forage conflicts and aid in maintaining wildlife populations at objective or slightly increased levels.

Livestock Grazing

Improving riparian condition would greatly improve conditions for both terrestrial and aquatic species. Colorado River cutthroat trout habitat would be improved, thereby increasing the long-term survival potential of this species.

Providing adequate forage for wintering elk on designated winter ranges would result in long-term winter forage availability and maintenance of affected elk above strategic plan levels. Degradation of private hay meadows would be reduced and winter range stability increased.

Not developing livestock waters in crucial elk winter ranges would result in decreased livestock-elk competition.

Grazing system design would result in increased forage diversity and reduction of competition for early green forage. Mule deer, antelope, sage grouse, and many non-game species would benefit.

Forestry

Forest cover would be reduced by 4.6 percent. Timber harvest would amount to 93 acres annually or a total of 1,865 acres (12.1 million board feet) over the next 20 years. This harvest level is based on the assumption that 100 percent of the existing harvested areas would regenerate to qualify as cover.

Existing elk populations could be maintained with current forest cover levels. Winter ranges and designated buffer areas adjacent to elk feedgrounds would be excluded from harvest. This would provide additional protection for these sensitive habitats and increase the capability to mitigate projected impacts to nine percent of the crucial elk winter range resulting from energy development.

Given these management restrictions, some impact to spring, summer, and fall elk habitat may occur, but would be expected to be within the tolerance level of existing elk populations.

The impacts to other species would be as described in Alternative B.

The impacts to aquatic habitat would not be significant.

ORV Activity

All big game would be protected during the critical winter stress period by implementing the seasonal restrictions and ORV limitation areas. This would result in increased winter survival, greater herd productivity, and promote winter range stability.

The potential for degradation of habitat through vegetation destruction and increased erosion would be reduced, but would still occur during unrestricted seasons. This is not expected to be significant.

Conclusion

In the long term, this alternative would aid in maintaining wildlife populations at objective levels.

Impacts to wildlife from oil and gas development would be the same as Alternative A with the exception that seasonal restrictions would be greater.

Livestock Grazing and Vegetation

The allocation of approximately 50 percent of the additional AUMs from vegetation treatment would provide approximately 6,225 AUMs for livestock use. The 6,225 AUMs available from this increase would result from 3,572 AUMs produced in "I" category allotments and 2,653 AUMs from "M" category allotments. The net increase of AUMs from vegetation treatments (other activities would reduce AUMs for livestock) in the "I" category allotments would be about 1,436 AUMs in 20 years. The adjustment for forage lost to lands and oil and gas activities would be a reduction of 936 AUMs. The allocation of AUMs from vegetation manipulation in the "M" category allotments would be evaluated on a case-by-case basis and more than 50 percent may be allocated to livestock grazing, if no crucial wildlife or watershed values would be affected. The vegetation manipulation in the "M" category allotments would be financed by sources other than BLM monies, such as permittees, other agencies, or advisory boards. If an unplanned fire occurs in an "M" or "I" category allotment, and the fire falls within the prescription for the allotment, the fire may be allowed to burn.

The management of 100 wild horses in the Desert Common and Reardon Canyon Allotments would result in livestock permittees losing 1,200 AUMs of livestock forage to wild horse use. To maintain the range condition, the amount of livestock use would be reduced to meet the requirements of the wild horses. Grazing permits would be reduced 11 percent affecting 19 grazing permittees. These AUMs could not be replaced by vegetation manipulation projects as such projects would only have the potential of producing an additional 65 AUMs.

The Desert Common Allotment is managed under an AMP and the management of wild horses would create conflicts. The wild horses would utilize the deferred area, using forage when the area is otherwise being rested from livestock use. This would impede the progress that has been made in improving forage production through AMP management. The wild horses would also cause a conflict in the management of available water. The permittees are responsible for all but two of the water projects in the area. The management of wild horses in the area would result in the BLM expending more monies on maintaining and supplying water for the horses.

Changing the kind of livestock, especially cattle to sheep in the critical mule deer and antelope winter ranges, would be denied. This may cause a hardship on some permittees submitting a request for a change in kind of livestock.

Managing allotments in the "I" category to improve range condition, watershed condition, and wildlife habitat may slightly impact livestock operators by limiting grazing periods, and requiring herding or moving livestock. These impacts are not expected to be adverse.

The construction of new livestock water developments would occur in areas outside of crucial wildlife winter areas to eliminate competition for forage and benefit wildlife.

The new waters developed would open areas to livestock use resulting in heavy use in the immediate area of the water. Approximately 21 acres would be disturbed due to the construction of water developments. Increased soil compaction and vegetation trampling would also occur in the immediate area of the water developments. The new water developments would remove grazing pressure from concentrated areas resulting in a beneficial impact to the entire allotment.

Manipulation of vegetation would increase overall forage production. In the short term, there would be a loss of vegetation, but in the long term there would be an increase in forage production. Allocation of this forage for livestock use would be less than in Alternative B.

Fences would be located and designed to control livestock and not impede wildlife movements. Some minor damage to vegetation would occur in the short term during the fence construction.

No impacts would occur in "M" and "C" allotments. They are expected to remain at or near their present condition and production.

Vegetation growth and vigor would increase by limiting the season of livestock use within allotments.

Livestock would be managed initially to improve the riparian areas from poor to fair condition. The riparian areas with the Colorado River cutthroat trout habitat would be given priority over the other riparian areas. Minor adverse impacts to livestock use would occur in the short term due to limiting livestock use in riparian areas.

Oil and gas activity would remove approximately 157 AUMs (1,375 acres) from forage production each 10 years in addition to the 540 AUMs (4,732 acres) already removed. In the short term, this would be important (a reduction of approximately 4 percent of the AUMs in the allotments impacted). The impact would be mitigated in the long term by conducting vegetation manipulation to bring forage production up to the adjudicated level. The short-term loss of vegetation to the construction and exploration phases would be mitigated by reclaiming portions of the disturbed area, and reseeding with a desirable seed mixture suitable for the site.

The developed recreation sites would be fenced and removed from livestock use. This would remove parcels from various allotments where the sites are located. The fencing would reduce the number of AUMs available in the allotments involved.

The disposal of public lands allocated for grazing would have an adverse impact by reducing the amount of forage available (1,013 AUMs), resulting in a reduction in livestock AUMs in the allotments with disposal parcels. This reduction (1,013 AUMs) is not significant throughout the planning area but may be locally important to an individual user.

The unallotted lands and related 2,396 AUMs would be lost to livestock use.

The protection of the stock driveway areas from land disposals would be a benefit to grazing users and to overall livestock management. The integrity of the stock driveways would be maintained and termination of the withdrawals on the parcels no longer needed for stock trailing make these areas available for multiple use.

Conclusion

An increase of up to 12,450 AUMs may be realized from vegetation manipulation. A net increase of about 1,436 AUMs of forage would be realized in the "I" category allotments. Of this, approximately 6,225 AUMs may be available for livestock use, after meeting the needs of wildlife, watershed, and wild horses. The implementation of AMPs would result in maintenance or improvement of the range condition and forage production, with an emphasis on management of riparian areas.

Wild Horses

The removal of wild horses from the LaBarge Herd Management Area (HMA) would reduce the number of wild horse viewing areas in the southwest Wyoming region. Benefits derived from the removal of wild horses from this area include reduced safety hazards, decreased property damage, decreased need for wild horse management, and increased available forage for livestock and wildlife.

The allocation of 1,200 AUMs to wild horses in the Desert HMA along with building the herd size up to 100 animals, would establish a viable population of wild horses. This would ensure a continued local wild horse viewing area. Wild horses in the Desert HMA would disperse as water wells are turned off by livestock permittees in mid-June (see Affected Environment). This would contribute to inconsistency and unobtained objectives in the existing AMP for the Desert Common Allotment. BLM would reassume maintenance responsibility of as many water facilities as necessary to meet wild horse water needs in the latter part of summer and autumn. This would result in increased maintenance costs to BLM. Maintaining the desired number of horses would require wild horse roundups, which would also result in substantial increased costs to the BLM. Benefits to wild horses would be realized by forage increases through both allocations and range improvements generated by the Desert Common Area Management Plan.

Forestry

The impacts created by this alternative would have the greatest affect on the forest resource values. The management restrictions and preclusions would result in the following impacts:

The 12 mmbf harvest levels would be approximately 52 percent lower than for the current harvest level.

When the alternative is compared to current economic situation (see Affected Environment), the net result is a 45 to 55 percent reduction in forestry related economic factors.

The annual mortality rate would increase from the current level (1.6 mmbf) to an estimated 1.7 mmbf in 20 years. This projected increase reflects a six percent increase from Alternative A which correlates to the lower harvest acreage.

Conclusion

With the lowest harvest level projection of all alternatives (Table 11), Alternative C would create the greatest impacts to the forest resource and would project a higher timber mortality rate (Tables 32 and 33).

Visual Resources

The number of acres in Class I would increase by 6,220 acres with the inclusion of the 5,264 acre Rock Creek ACEC and the 956 acres added to the proposed Scab Creek wilderness as Class I area. The number of acres in Class II would decrease by 145,655 acres. The number of acres in Class III would increase by 133,656 acres. The acreage in Class IV would remain relatively constant with a net gain of 5,779 acres.

The overall impact to visual resources in the planning area would provide protection to the more sensitive viewsheds in the area and would provide a more accurate rating of the visual management needs of the entire area.

The initiation of a program to improve the visual quality of the oil field areas would benefit the visual resources in those areas and, in many cases, would benefit other resources such as soil, watershed, and vegetation.

The application of the no surface occupancy stipulation to 20,720 acres surrounding the ten elk feedgrounds would benefit these visually sensitive areas.

The application of the no surface occupancy mitigation to the developed and semideveloped recreation sites, and implementing a no surface disturbance stipulation within one-quarter mile of these sites, would provide needed visual protection to these heavily used and sensitive sites.

Watershed impacts to visual resources would be the same as for Alternative B.

The 98,552 acres proposed for vegetation manipulation would result in minor short-term adverse impacts over to visual resources.

Minor adverse visual impacts would occur in riparian areas from intensive livestock use. These should decrease in the long term as practices are implemented to improve riparian areas.

There would be an increased potential for adverse impacts to the existing visual resources from the timber management actions proposed in this alternative. The reduction of the riparian buffer area from 200 feet to 100 feet would allow logging activities closer to the visually sensitive areas along streams. The increased size of clearcuts from 13 to 40 acres increases the potential of the cut area being noticeable and obvious in the landscape. However, this also allows for more flexibility to change the shape and spacing of the cut to blend with natural openings.

Not allowing clearcutting in the Beaver Creek drainage and removing the Rock Creek ACEC, the elk feedgrounds, and crucial elk winter ranges from the timber base would reduce the conflict and potential adverse impacts to the visual resources in those areas.

The establishment of the majority of the area as having ORV use limited to existing roads and trails would be compatible with the visual designation and in some cases prevent the degradation of the visual quality resulting from new disturbances and roads.

The application of a no surface occupancy stipulation to significant cultural resource sites would help to protect the visual sensitivity of those sites.

The avoidance of the identified areas not suitable for linear rights-of-way would benefit the protection of the sensitive visual resources in these areas.

Off-Road Vehicles

The effect of additional winter ORV closures for protection of elk approximately 41,555 additional acres, is to close these areas to snowmobile use. These areas currently do not receive very much snowmobile use and in some cases are being posted by the Wyoming Game and Fish Department under cooperative agreement with the BLM.

The closure of the mule deer and antelope winter ranges shown on Map 19 would add an additional 223,158 acres of land closed to ORV use from November 15 through April 30. Some of these areas currently are popular snowmobile use areas while others receive very little use. Much of the Mesa area receives moderate use by local residents primarily on weekends. The northern third of the Mesa receives heavy use as it is easily accessible from town by snowmobile. This area is used heavily in the afternoons as well as on weekends. Closure of this area would result in users shifting to the proposed open areas near the towns. There would be no loss in opportunity to participate in ORV recreation, however, there would be a shift in the type of opportunities available. There would be more opportunity for using concentrated use areas and less opportunity for unrestricted cross country travel. The opportunity for viewing the deer wintering on the mesa would be lost to the general public.

The Deer Hills and Oil Field deer winter ranges are also close to populated areas and are easily accessible by snowmobile much of the winter season. These areas are used in a pattern very similar to the Mesa area. The closure of these areas to winter use would also result in the loss of popular public use areas.

The New Fork and Reardon Canyon deer and antelope winter range areas do not receive a lot of snowmobile use. They are primarily used by nearby ranchers and local coyote hunters. There would not be a significant loss of visitor use by closing these areas, however, the current low level of use is not seen as creating any significant impact or conflict.

The implementation of a seasonal closure on 5,424 acres in the Stewart Point area of the Mesa from April 30 through May 15 would be in direct conflict with the existing use pattern of that area. It is anticipated that closing this area would only serve to displace the use to another area, resulting in adverse impacts to the new use area.

The implementation of the "limited to existing roads and trails" designation for public lands in the remainder of the area may pose conflicts in some areas, however, the density of existing roads and "two track" trails provides access to essentially all of this area. The condition in the limitation definition which allows off road use for necessary tasks such as picking up game kills and for livestock management eventually allows for existing uses to continue in most cases.

The implementation of an ORV closure for 653 acres in the Holden Hill area (Map 19) would not noticeably affect ORV. The Holden Hill area would be included in the Miller Mountain elk winter range which is closed to snowmobile use from November 15 through April 30. There is little other known ORV use in that area and therefore no conflict is identified.

Recreation

This alternative would have short-term beneficial impacts but potential long-term adverse impacts to the recreation resource. The objective of managing for existing use and preventing resource damage would solve many of the current problems but the long-range needs of the public would not be met. As recreation use increases in the future, much of the potential of the recreation resources would not be utilized, resulting in overuse of the existing areas.

Potential safety hazards and incompatible uses on recreation sites would be avoided by: 1) withdrawing these sites from mineral entry, 2) prohibiting surface occupancy by surface-disturbing activities, 3) restricting livestock grazing, and 4) prohibiting surface disturbance within one-quarter mile.

The establishment of a 14-day camping limit would alleviate the long-term camping problems discussed in Alternative A. The 14-day limit may be too restrictive by not allowing for any move-in, move-out time in conjunction with a two-week stay. An inconsistency would also exist with the local United States Forest Service ranger district which uses a 16-day limit outside of campgrounds and a 14-day limit in campgrounds.

The application of oil and gas leasing stipulations to not allow surface occupancy on developed and semideveloped recreation sites and to not allow surface disturbance within one-quarter mile of those sites would benefit those sites. Implementation of these stipulations is essential to public safety and necessary for protection of the integrity of the sites.

The improvement of wildlife habitat through vegetation treatment of 16,000 acres may lead to increased wildlife populations which in turn may result in additional hunter days. The treatment of an additional 98,552 acres for livestock management would also benefit wildlife and may result in a further increase in hunter days.

The management of wildlife populations at current or slightly increased levels would have the effect of allowing hunter days and fishermen days to essentially continue at their current level or possibly higher and would be an important benefit to the local community. The specific wildlife management actions identified pose no specific conflicts with the recreation programs.

Not licensing the 2,396 AUMs on 20,991 acres of unallotted public lands would serve as a benefit to recreation especially on those lands (approximately 50 percent) in the riparian areas. These lands have high recreation use areas and have a high potential for development.

The impact of removing the LaBarge herd is addressed under Alternative B. The impact of maintaining the Desert herd is addressed under Alternative A.

The forested lands would be managed to maintain the current levels of forest cover. No change in hunter or recreation user days is anticipated. Benefits to the recreation uses would essentially be the same as under Alternative A, however, the quality of the recreation resources would receive a higher level of protection.

Recreation resources would benefit from proposed visual resource management because sensitive recreation use areas would receive optimum protection.

The establishment of the Rock Creek ACEC as a Class I visual management area is consistent with previous decisions to not allow surface-disturbing activities within that sensitive drainage. Existing high quality nonmotorized recreation uses would benefit from actions associated with management of Class I areas.

The implementation of the ORV restrictions would primarily impact recreational ORV uses and are discussed under Off-Road Vehicle Management. The impacts to other recreation uses are secondary and for the most part tied to wildlife populations. Big game population increases could increase hunter use and benefit recreation uses.

The implementation of the "limited to existing roads and trails" designation may pose conflicts in some areas, however, the density of existing roads and "two track" trails provides access to essentially all of this area. The condition in the "limited" definition would not impact existing uses.

The impacts of cultural resource actions would be the same as Alternative A.

The implementation of lands management actions would have a beneficial impact on recreation resources. The result would be to raise the importance and priority that recreation related or benefiting realty actions would receive. Public access needs and land exchanges for public benefit could be actively pursued and processed. This, combined with a continued protection of the existing recreation resources, would result in a higher level of use available for recreation purposes, fewer conflicts with landowners, and higher quality experience for the recreating public.

Cultural Resources

The actions identified enhance cultural resource goals, protect or salvage sites currently deteriorating, implement management plans on the more important sites, and allow for increased public appreciation and use of the historic trails and related sites. Generally, land management decisions that protect riparian zones with high cultural site potential would benefit cultural resources.

Limiting geophysical exploration in critical areas would have beneficial impact to cultural resources as less surface is disturbed.

Not permitting grazing in non-allotted public lands would benefit cultural resources by lessening the potential for erosion and trampling.

A reduction in timber harvesting and related activities would have a beneficial impact to cultural resources. Reducing the acreage cut reduces site loss potential commensurately.

Increased ORV limitations and closures would benefit cultural resources. Fewer sites would be impacted and artifact collecting would be slightly reduced. No impact would result from additional restrictions on over-the-snow machines because this type of ORV use rarely impacts cultural resources.

Pursuing exchanges that support cultural resource management objectives would benefit cultural resources. Additional sites not currently protected would receive protection. Historic trails located on private surface could be made available to the public through exchange.

Virtually no impacts would occur to cultural resources from rights-of-way construction.

Lands

Rights-of-way impacts would be greater than in Alternative A due to the identification of additional avoidance areas (up to approximately 45,000 acres). Additional restrictions encompassing approximately 816,000 acres, would also increase the cost of rights-of-way construction. Approximately 180,000 additional acres would have winter wildlife protection stipulations.

CMU classification impacts would be similar to Alternative B. Fewer disposals would be enacted due to wildlife, livestock grazing, and watershed constraints limiting community expansion. Approximately 1,000 fewer acres would be disposed of under this alternative than under Alternative B.

The use of the land after disposal may result in adverse impacts to air resources, soil, and water. However, local zoning and county, state, and federal regulations should minimize this impact. Disposal of land in wildlife habitat could adversely impact wildlife if the subsequent use destroyed habitat or affected wildlife during critical breeding, calving, and nesting activities.

Lands transferred to another agency for management are not expected to add a significant amount to their administrative costs. The public would benefit from improved management of the land remaining in federal ownership.

R&PPs would have the same impacts as Alternative B.

Conclusion

Land tenure adjustment is expected to result in overall beneficial effects and improved management of the adjoining public lands and resources. Seasonal and other stipulations for rights-of-way result in costs to the right-of-way holder. These costs are expected to remain approximately the same percentage of total project costs as they are now.

Fire Management

Fire impacts would be similar to those described in Alternative B. Additional restrictions would be applied to prescriptions. Reaching the limits of these prescriptions, which would initiate suppression type actions, is unlikely as indicated by past fire history.

Areas of Critical Environmental Concern (ACEC)

Management actions would result in restricting mineral and forest resource development and ORV use in the Rock Creek ACEC. No adverse impacts to the natural resources, particularly Colorado River cutthroat trout and elk habitat, would result.

Management actions would provide maximum protection and enhancement of Colorado River cutthroat trout and elk calving habitat in the proposed Beaver Creek ACEC. No adverse impacts would be expected.

Socioeconomics

Minerals Management

Same as impacts for the Preferred Alternative.

Livestock Grazing

The 107,907 AUMs of grazing available annually in 1985 on BLM-administered land would increase to about 109,343 AUMs in 20 years. Available AUMs decline during the first seven years, then increase until the 20 year.

The changes in available annual AUMs over time are assumed to translate into proportional changes in livestock grazing on BLM-administered land and in the numbers subsequently sold. Table 43 shows impacts in specific years on economic factors supported by livestock grazing on BLM-administered land and assumes that current technology and economic relationships relative to livestock management in the planning area would remain the same for the period covered by the analysis.

Output Revenue

The value of annual direct sales of the livestock grazing on BLM-administered land would decline slightly (0.2 percent) by 1995, then subsequently improve until it is $100,000 higher by 2005 than the base year. This pattern of change would be reflected in total annual area revenue from livestock grazing on BLM-administered land which would also be about 0.2 percent lower by 1995 and between 1 and 2 percent higher by 2005. However, revenue during the period under analysis would continue to represent less than 6

TABLE 43

ECONOMIC FACTORS IMPACTED BY LIVESTOCK GRAZING ON BLM-ADMINISTERED LAND (Alternative C)

Subject	Unit	1985	1995	2005	Percent Change From 1985[1]	
					1995	2005
Cattle Sold	Head	20,000	19,966	20,266	(0.2)	1.3
Direct Sales Revenue	$1,000	7,628	7,615	7,729	(0.2)	1.3
Related Area Revenue	$1,000	18,069	18,038	18,308	(0.2)	1.3
Personal Income	$1,000					
Livestock Sector		387	386	392	(0.2)	1.3
Related Area Total		1,830	1,826	1,854	(0.2)	1.3
Employment	man-years					
Livestock Sector		137	137	139	0	1.5
Related Area Total		208	207	210	(0.5)	1.0

[1] Percent declines are shown in parentheses.

percent of current total annual area output revenue (USDI 1985b).

Personal Income

Annual area personal income (both direct and total) would decline slightly below current levels by 1995, but by 2005 would be higher than current levels by between 1 and 2 percent. By 2005, annual direct income would be about $5,000 higher than 1985 and total area personal income about $24,000 higher. Relative to the resource area's total annual personal income, income derived from livestock grazing on BLM-administered land would continue to represent less than 1 percent during the period of the analysis.

Employment

Employment supported by BLM related livestock activity currently accounts for under two percent of total annual area employment. This relationship is expected to continue over the period of the analysis. There may be a slight increase in annual direct and total area employment needs due to activities under this plan. This probably would not exceed two man-years by 2005.

Forestry

Socioeconomic impacts analyzed are based on an expected continuous average annual harvest level of 605 mbf on BLM-administered land. Of this total, 577 mbf represent sawlog harvesting. The remainder consists of posts and poles. The economic impacts are analyzed from two standpoints: timber harvesting and sawlog milling.

Timber Harvesting

Output Revenue. Annual timber harvesting of BLM-administered timber would yield direct revenues of approximately $10,000 yearly, a decrease of approximately 50 percent from present levels. As a result, related total annual area output revenue would be about $32,000 less than current levels.

Personal Income. In 1985, personal income received directly by the timber harvesting sector from harvesting BLM-administered timber was just under $4,000, annually. This would decline to just under $2,000. Presently, contributions of BLM-administered timber harvesting to total annual area personal income is slightly over $6,000. This would drop by 50 to 55 percent.

Employment. Presently, about three-quarters of a man-year of yearly employment can be attributed to BLM related timber harvesting activities. This would decrease to under 0.40 man-years.

Sawtimber Milling

This portion of the analysis is based on the average 10 percent of total area sawlog volume from BLM-administered timber harvests normally processed yearly in the area.

Output Revenue. Annual direct revenues from sawlog sales of BLM-related timber processed in the resource area are estimated at roughly $40,000. This would drop by 50 percent. About $90,000 of total annual area output revenue presently is attributed to sawlog milling of timber from BLM-administered lands. This would drop to about $45,000 annually under this alternative.

Personal Income. Annual direct personal income from area sawlog milling of BLM-related timber would decline from around $9,000 in 1985 to between $4,000 and $5,000 annually. In addition, the annual contribution of BLM-related timber sawlog milling to total area personal income would decline from between $14,000 to $15,000 in 1985 to just over $7,000.

Employment. Currently, between one and two annual area jobs are dependent upon milling of sawlogs from BLM-administered land. This would drop to less than one annual job.

Recreation

Consumptive recreation days spent annually on BLM-administered lands would increase slightly from the present level of about 48.8 million to just under 48.9 million by 2005.

Output Revenue

As the result of the expected rise in annual consumptive recreation days, annual output revenue derived from recreation activities is also expected to rise. Consequently, by 2005, annual revenues accruing directly to the recreation sector would rise above the 1985 level by less than 0.5 percent (roughly $8,000). As a result, total direct returns would remain at the present level of $2.6 million over the period covered by the analysis. The total contribution to annual output revenues (direct, indirect, and induced) of consumptive recreation on BLM-administered land would be $16,000 higher by 2005, a rise of less than one-half percent.

Personal Income

By 2005, annual personal income realized directly by the resource area recreation sector from consumptive recreation on BLM-administered land would rise by less than 0.5 percent from the 1985 level of $725,000. The area's total annual personal income supported by consumptive recreation on BLM-administered land also is expected to increase by less than one-half percent, but should continue at the 1985 level of slightly over $1 million during the period covered by the analysis.

Employment

This alternative would have no discernable impact on the direct employment level recorded in 1985. The total man-year needs by all economic sectors relative to recreation activities on BLM-administered land would rise by only one man-year by 2005.

Summary

Output Revenue

Direct yearly returns from livestock and recreation vary over time but annual returns from forestry, although lower than current levels, are assumed to remain constant. Joint direct returns from livestock, forestry, and recreation on BLM-administered land drop below the current $10 million level during the first 11 years of the plan. In the 12th year, they return to present levels and by the 20th year are about $78,000 (less than 1 percent) higher than the 1985 returns. By comparison, sales to final demand by Sublette County, alone, total over $200 million yearly. Therefore, the projected increase in direct revenue would amount to less than one percent of the area's current total annual sales receipts form all sectors.

Livestock, forestry, and consumptive recreational activities on BLM-administered land currently enhance total annual area revenues (direct, indirect, and induced) by slightly more than $23.5 million. This figure would rise to slightly over $23.7 million in 20 years. By comparison, annual area output revenues from all sources currently total between $300 and $400 million. Thus, increases resulting from this alternative would equal less than one percent of current annual area output revenues.

Personal Income

Direct personal income attributable to livestock, forestry, and recreation activities on BLM-administered land would remain at about $1.1 million. Related total area income (direct, indirect, and induced) would remain at about $3 million during the period of the analysis. In 1983, annual area income from all sources totaled about $220 million.

Employment

Livestock grazing, forestry, and consumptive recreation on BLM-administered land increased joint direct annual employment in these economic sectors by 228 man-years in 1985. This level would decline by about one man-year by 1995 but would then surpass present levels by one man-year by 2005. The corresponding total area employment impacts (direct, indirect, and induced) would equal a one man-year decline by 1995 and a two man-year increase by 2005. Presently, livestock, forestry, and consumptive recreational activities on BLM-administered land support about 322 man-years of annual area employment. Total area employment currently is estimated at about 12,000 workers.

Long-term adverse impacts to cultural resources are lessened under this alternative because of a de-emphasis on total grazing, timber, and lands activities. Although actions that potentially affect cultural resources are usually preceded by Class III inventory, undetected sites go unprotected, resulting in unavoidable adverse impacts. Such actions are somewhat reduced in this alternative, with a commensurate reduction in the potential to adversely affect cultural resources.

Short-Term Use Versus Long-Term Productivity

The construction of major new sources of air pollution would be managed so that emissions would not reduce buffering capacities or adversely impact air quality related values in the nearby high elevation watersheds of the Bridger, Popo Agie, and Fitzpatrick wilderness areas. Impacts to the natural environment from the emission of air pollutants would not result in any irreversible or irretrievable loss of resources.

Underutilization of the oil and gas resource would be the long-term effect of this alternative. Tighter restrictions would discourage drilling by increasing costs, reducing available access, and reducing time available for drilling in some areas. A resulting loss in royalty revenue would occur and the area economy could be slightly affected.

The closure of the Rock Creek ACEC to oil and gas leasing would result in substantial gas reserves being lost to development in the long term.

Not leasing the Graphite elk wintering complex until studies are completed and more minerals information acquired would impact mineral development in the short term. This should decline over the long term as access to mineral resources is provided.

Short-term use involved with mineral exploration is projected to have insignificant impacts to long-term soil productivity due to avoidance of activity in critical areas.

Initially, there would be an increase in sedimentation and salinity from road construction and other surface disturbing activities. Due to stabilization, this accelerated erosion would be reduced by 20 percent over the long term.

Any implementation of AMPs over the short term would increase long-term soil productivity through distribution of compaction potential and protection of ground cover. Short-term soil loss, due to vegetation manipulation and construction of range improvements on 27 allotments, would result in long-term increases in soil productivity.

In general, riparian zones would remain static in the short term, but with time could improve to a higher condition class.

Wildlife habitat and forage for livestock grazing would be lost to surface disturbing activities. Some soil displacement would occur. The majority of this loss would be short-term because of requirements for reclamation. Some additional adverse impacts to wildlife would result from surface disturbing activities when big game would avoid an area where an activity is taking place. They would move to other areas. This impact is expected to be short-term for a particular activity but is expected to be taking place somewhere in the area during the next 20 years.

Both short-term and long-term wildlife habitat productivity would be increased resulting in maintenance of strategic plan population objectives. Elk populations should remain at or near existing levels.

There would be a limited amount of impact during the construction of range improvements. In the long term, if all vegetation manipulations are complete, an additional 13,236 AUMs could be created. Of this, approximately 50 percent would be allocated to wildlife, watershed, and wild horses, and the remainder would be allocated to livestock. This would increase livestock AUMs in the "I" category allotments by 3,960 AUMs. The net increase in livestock AUMs would be 1,436 AUMs. The management of wild horses in the Desert Unit would reduce the livestock AUMs by 1,200 AUMs in the long term. The removal of the LaBarge wild horses would remove the competition for forage in the area involved between the livestock and wild horses.

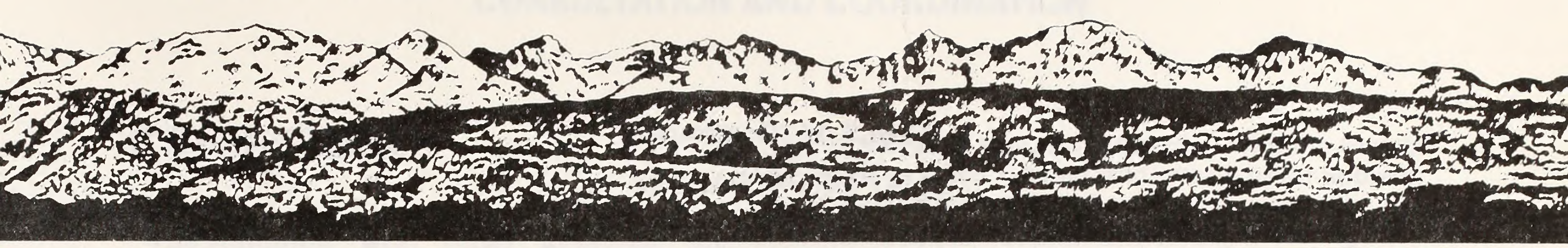
Adverse impacts would occur to timber management over the long term with a decline in productivity and projected mortality rate of 1.7 mmbf in 20 years.

There would be a short-term impact to visual resources from vegetation manipulation and timber harvest. These impacts would diminish over the long term.

Conclusion

This alternative would have the least adverse impacts to soils, watershed, and wildlife. Important high potential oil and gas resources would not be developed. Riparian areas would be stabilized and improved. Overall, range condition would improve although livestock would only gain approximately 1,436 AUMs. The annual timber mortality rate would increase to 1.7 mbf. Recreation uses would be impacted in the long term. ORV uses would decline. Community expansion would be accommodated to a lesser extent than under Alternative B.

CHAPTER 5



CONSULTATION AND COORDINATION

INTRODUCTION

The Pinedale RMP/EIS was prepared by an interdisciplinary team of specialists from the Pinedale Resource Area, the Rock Springs District Office, and the Wyoming State Office (Table 44). Reviews for accuracy and consistency were provided by both the district office and state office staffs.

Consultation, coordination, and public involvement have occurred throughout the process through public meetings, informal meetings, individual contacts, news releases, and *Federal Register* notices.

Initial steps in the process began in 1982 with the development of a preparation plan. Other early efforts included research, inventory, analysis, and interagency coordination.

TABLE 44

LIST OF PREPARERS

Name	Position	Responsibility
DeLon Potter	Area Manager	Overall Responsibility
Renee Dana	Team Leader	Project Coordination, Planning Guidance
Jack Bogle	Outdoor Recreation Planner	Assistant Team Leader, Area Coordinator, Visual, ORV, Recreation, Map Coordination
Bob Nelson	Range Conservationist	Range
Bob McCarty	Wildlife Biologist	Wildlife
Steve Laster	Range Conservationist	Wild Horses, Vegetation
Bill Lanning	Forester	Forestry, Access
Dave Harper	Realty Specialist	Lands, Realty
Ramsey Bentley	Geologist	Geology, Minerals, Paleontology
Chris Butler	Hydrologist	Watershed
Colin Voigt	Soils Scientist	Soils
Bob Raper	Fire Management Officer	Fire
Jim Hamilton	Mining Engineer	Solid Minerals
Dave Vlcek	Archeologist	Cultural, Historical
Joe Patti	Natural Resource Specialist	State Office Coordination
Allen Riebau	Physical Scientist	Air Quality
Carl Santmyer	Economist	Socioeconomics
Angelina Pryich	Writer-Editor	Editing

TABLE 44 (Continued)

LIST OF PREPARERS

Name	Position	Responsibility
Grace Jensen	Clerk-Typist	Typing
Sallie Otteman	Secretary	Typing
Wendy Fry	Recreation Technician	Technical Assistance
Shelley Peele	Supervisory Cartography Technician	Cartography
Sue Roberts	Cartography Technician	Cartography
Carol Ross	Illustrator	Illustrations

PUBLIC PARTICIPATION

A public participation plan was prepared to ensure that the public would have numerous opportunities to be actively involved in the planning and environmental process. Both formal and informal input have been encouraged and used.

Issues were mailed to approximately 442 persons, agencies, organizations, and companies in September 1984 to obtain responses from the public. Approximately 60 responses were received. The following discussion on issues-related attitudes is based on information received from those who took the initiative to make their views known in response to the issue mailing. The majority of the responses were received from organizations. It should be noted that many of the respondents expressed views on more than one issue. On most issues, a wide variety of opinions were expressed. Many respondents indicated they favored multiple use but interpretation of what that meant differed.

More than half of the responses contained comments regarding energy/mineral exploration and(or) development. The comments covered mostly a concern over exploration and development. There was considerable interest by ranchers in the grazing and wild horse issues.

On September 27, 1983, a notice of intent to prepare a plan was published in the *Federal Register*.

On June 4, 1984, a news release was issued and a letter mailed to over 300 individuals, companies, groups, and governmental agencies to solicit views and comments on a set of proposed planning criteria.

On January 8, 1985, a letter requesting comment on the development potential of the resource area was mailed to the Rocky Mountain Oil and Gas Association (RMOGA) and specific companies operating in the Pinedale Resource Area.

The Rock Springs District Advisory Council has been kept apprised of the RMP progress and their comments and recommendations have been solicited.

Each operator of a grazing allotment has been contacted either in person or in writing to discuss the categorization of his allotment.

Formal and informal meetings have been held with many members of the ranching and minerals industries and with other interest groups and agencies. The comments generated from these meetings is on file in the Pinedale Resource Area office.

As part of the ongoing activity in consultation and coordination, the BLM is preparing a biological assessment for threatened and endangered species. The BLM will share the results of the assessment with the U.S. Fish and Wildlife Service, as required by Section 7 of the Endangered Species Act of 1973, as amended.

CONSISTENCY

Coordination with other agencies and consistency with other plans was accomplished through frequent communications and cooperative efforts between the BLM and involved federal, state, and local agencies and organizations (Table 45).

The Wyoming Governor's Clearinghouse receives numerous copies of this draft document for review to ensure consistency with the State's ongoing plans. County land-use plans for Sublette and Lincoln Counties have been reviewed by the RMP team to ensure consistency. Meetings are held with the respective county planners and commissioners to promote greater understanding of goals, objectives, and resources of both the counties and the BLM. The Forest Service draft plan for the Bridger-Teton National Forest has been reviewed and comments provided to the Forest Supervisor.

TABLE 45

KEY COORDINATION ACTIONS

AGENCY	COORDINATION/RESPONSIBILITY
FEDERAL AGENCY	
Department of the Interior	
Bureau of Reclamation	Coordinate mineral leasing and other activities that affect lands that are administered by the BOR. Review the RMP for consistency with BOR planning.
National Park Service	a) Oregon and Mormon National Historic Trails Management Plan responsibility. Continuing oversight and assistance role in the implementation of trail plans. b) Review of RMP for consistency with NPS planning.
Bureau of Mines	Approval for recovery of federally owned helium from natural gas.
U.S Fish and Wildlife Service	Review actions affecting threatened or endangered species of fish, wildlife, or plants.
U.S. Geological Survey Water Quality	Review of RMP for consistency with USGS Planning.
Minerals Management Service	Review of RMP for consistency with MMS Planning.
Department of Agriculture	
U.S. Forest Service Brider-Teton National Forest	Coordinate mineral leasing and other activities that affect lands administered by USFS. Review the RMP for consistency with USFS planning. Cooperate in studying the potential national natural landmark in the glacial moraines near Boulder. Review of RMP for consistency with the mangement actions. The proposed actions would also be discussed with the Wyoming State Forestry Division and other agencies involved in wildland fire management and were favorably received.

TABLE 45 (Continued)
KEY COORDINATION ACTIONS

AGENCY	COORDINATION/RESPONSIBILITY
Department of the Army	
U.S Army Corps of Engineers	Issue Section 404 individual permit(s) for placement of dredged or fill material in waters of the United States or their adjacent wetlands.
Environmental Protection Agency	Issue Resource Conservation and Recovery Permit for treatment, storage, or disposal of hazardous waste.
	Register generators of hazardous waste.
	Water and air quality control.
	Review RMP for consistency with NEPA and CEQ requirements.
STATE AGENCY	
Wyoming Department of Environmental Quality	Review of RMP for consistency with DEQ regulations and management plans.
Solid Waste Management	Permits for solid waste disposal.
Air Quality Division	Issue air quality construction and operation permit.
	Emission of smoke from controlled BLM burning coordinated with the AQD, with approval granted by that agency.
Water Quality Division	Approval of wastewater disposal
	Approval of sewage treatment plant (ground water pollution control permit).
Wyoming State Engineer's Office	Review of RMP for consistency with state ground and surface water appropriations and management plans.
	Issue permits to appropriate ground water; statement of completion and description of well including produced water for beneficial use.
	Issue water rights to appropriate surface water.
Wyoming Game and Fish Department	Review of RMP for consistency with fish and wildlife management plans.
	Set hunting and fishing areas/seasons.
	Review actions affecting fish and wildlife species.
	Administer wildlife resources.

TABLE 45 (Continued)

KEY COORDINATION ACTIONS

AGENCY	COORDINATION/RESPONSIBILITY
Wyoming Oil and Gas Conservation Commission	Review of RMP for consistency with WOGCC rules and regulations/ management plans.
	Authority to allow or prohibit flaring or venting of gas.
	Approval of waster water disposal.
	Set gas/oil ratio of wells.
	Regulate drilling and plugging of wells.
	Directional drilling standards.
	Rules and regulations governing drilling units.
	Agreements for enhanced recovery.
	Permits to drill and blowout prevention.
	Waste of natural gas.
	Ratable take of oil.
	Ratable take of gas.
Wyoming State Highway Department	Review of RMP for consistency with state highway system management.
	Permits for oversized and overweight loads.
	Encroachment permits.
Wyoming State Land Board	Review of RMP for consistency with management of state lands.
	Issue easements to cross state lands.
	Review and coordination of fire management plans.
Wyoming Public Service Commission	Review RMP for consistency.
	Certificate of public convenience and necessity.
Wyoming State Historic Preservation Office	Review RMP for consistency.
	Cultural clearance.
Department of Agriculture Weed and Pest Control	Cooperation with county weed and pest control programs would continue. These programs were analyzed in the Rock Springs District Designated Noxious Weed and Pest Control Environmental Assessment and the Northwest Area Noxious Weed Control Program EIS.

TABLE 45 (Continued)

KEY COORDINATION ACTIONS

AGENCY	COORDINATION/RESPONSIBILITY
COUNTY AGENCY	
Sublette County	Review RMP for consistency. Zoning. Access permits.
Lincoln County	Review RMP for consistency. Zoning. Access permits.

CONSULTATION/ COORDINATION

Members of the RMP team have consulted formally or informally with numerous agencies, groups, and individuals in the RMP development process. The following list is representative of the businesses, agencies, organizations, and individuals who have indicated an interest in the Pinedale RMP and who have been contacted during the planning process. This list is not all-inclusive. A complete list is on file in the Rock Springs BLM District Office and the Pinedale Resource Area Office.

Federal Agencies

U.S. Department of the Interior
  Bureau of Reclamation
  Bureau of Indian Affairs
  Bureau of Land Management (other offices)
  Fish and Wildlife Service
  National Parks Service
  Office of Surface Mining

U.S. Department of Agriculture
  Forest Service
  Soil Conservation Service

U.S. Department of Energy
U.S. Department of Defense
U.S. Department of Housing and Urban Development
U.S. Department of Commerce
U.S. Department of Transportation
U.S. Environmental Protection Agency

State of Wyoming

Department of Environmental Quality
Game and Fish Department
Geological Survey of Wyoming
Governor of Wyoming
State Clearing House
State Engineer
State Historic Preservation Office
State Highway Department
Wyoming Recreation Commission

Local Government

County Commissions of Lincoln and Sublette Counties
Towns of Big Piney, LaBarge, Marbleton, and Pinedale
Lincoln and Sublette County Planning Offices

State Legislators

Senators and Representatives of Lincoln and Sublette Counties

Congressional Offices

Office of Congressman Cheney
Office of Senator Simpson
Office of Senator Wallop

Tribal Councils

Arapaho and Shoshoni Tribal Councils

Industry

Arco Coal Co.
Atlantic Richfield Company
Axem Resources Inc.
Belco Petroleum Corporation (Enron)
Black Butte Coal Co.
Bridger Coal Company
CIG Corporation
Champlin Petroleum
Chevron USA, Inc.
Christmann and Associates
Church and Dwight Co., Inc.
Cumberland Coal Company
Dew Lumber Company
Diamond Shamrock
Exxon
FMC Corporation
Gulf Mineral Resources, Inc.
Gulf Oil
Homestake Mining Company
Husky Oil Company
Kaiser Steel Corporation
Kerr-McGee Corporation
Longtree Timber
Lousiana Pacific
Marathon Oil Co.
Minerals Exploration Coalition
Mobil Oil Corporation
Mountain Bell
Mountain Fuel Resources, Incorporated
Nerco Inc.
Northwest Pipeline Corporation
Pacific Power
Petroleum Association of Wyoming
Rocky Mountain Energy
Rocky Mountain Oil and Gas Association, Incorporated
South & Jones
Stansbury Coal Co.
Sun Exploration and Production
Texaco Inc.
Texas Gulf, Inc.
Texas Oil and Gas Corporation
The PQ Corporation
U.S. Steel Corporation
Union Pacific Railroad
Utah International, Inc.
Utah Power and Light Company
Western Energy Co.
Wickes Forest Industries
Wyoming Telephone Co.

Associations and Interest Groups

American Horse Protective Association
American Humane Association
Animal Protection Institute of America
Citizens for Survival of the Red Desert
Defenders of Wildlife
Earth First!
Environmental Defense Fund
Friends of Wild Wyoming Deserts
Greater Yellowstone Coalition
Independent Petroleum Association of Mountain States
International Society for the Protection of Mustangs and Burros
Izaak Walton League
LaBarge Roundup Association
National Audobon Society
National Resources Defense Council
National Wildlife Federation
Northern Plains Resource Council
Old West EIS Project
Oregon-California Trails Association
Overthrust Industrial Association
Petroleum Association of Wyoming
Rock Springs Grazing Board
Rocky Mountain Oil and Gas Association
Seedskadee Audobon Society
Sierra Club
Society for Range Management
Southwest Wyoming Industrial Association
The Nature Conservancy
WHOA
Wild Horses Yes
Wilderness Society
Wyoming Wildlife Federation

Others

Many individuals were contacted including all range permittees and lessees in the Pinedale Resource Area.

APPENDICES

APPENDIX A

ALTERNATIVE FORMULATION CRITERIA

This appendix describes the criteria used in formulating the alternatives.

Criteria encompassing "all alternatives" applies to all the alternatives except the no action alternative. The no action alternative is the continuation of the existing situation and is not included in the alternatives that were formulated during the planning process.

At least one alternative should provide for maximum protection of the natural environment and resource values through stringent restrictions such as no mineral location or leasing, and(or) no surface occupancy in areas containing important and sensitive resource values.

At least one alternative should include only minimum restrictions on exploration, and development of locatable and leasable minerals.

All alternatives would consider that voluntary acceptance of surface-disturbance mitigation measures on existing mineral leases would be pursued where existing lease conditions are inadequate to mitigate adverse resource problems or conflicts. Use of mitigation requirements on new leases and applications for permit to drill should be considered only when they are "necessary" and "justifiable."

In all alternatives, developments would be concentrated in areas where federal land ownership is greatest and in areas where intensive land utilization is occurring or expected to occur.

Under all alternatives, developments would be compatible with land and resource values identified through alternative objectives.

All alternatives should identify management practices that protect or prevent degradation of all critical watersheds, ground water quality, high salinity areas, and unstable sites.

At least one alternative should place limitations on all surface-disturbing activities on public lands where such actions should increase salinity or sediment levels in the Green River and Colorado River system.

At least one alternative should identify areas where improved management would improve or enhance watershed conditions.

At least one alternative should provide for sufficient wildlife habitat to support population objectives identified in the 1985 Wyoming Game and Fish Department Strategic Plan.

At least one alternative should identify water projects necessary for wildlife use and ensure that water is available during the required season of use.

All alternatives should provide for coordinating all land and resource activities in key wildlife habitat areas to prevent compounding impacts on wildlife. This would be consistent with the overall objectives of each alternative.

All alternatives would include provisions to ensure that no activities would be permitted in threatened or endangered species habitat that would jeopardize the continued existence of such species or its habitat. Management actions in threatened and endangered species habitats would be designed to improve habitats for these species where possible. The U.S. Fish and Wildlife Service would be consulted according to Section 7 of the Endangered Species Act of 1973, as amended, prior to implementing projects that "may affect" threatened or endangered species habitat.

All alternatives will include provisions for implementation of the objectives and planned actions from the national recovery plans for threatened and endangered species where they may occur in the resource area.

At least one alternative should provide for maintaining a viable wild horse herd in the resource area.

At least one alternative should consider removing all wild horses from the resource area.

Collectively, the alternatives should provide a range of livestock grazing use from the minimum, where no grazing would be allowed, to the maximum, where as many range improvements as needed would be developed to provide for maximum allowable grazing levels.

All range improvement project proposals should be addressed by allotment. The projects should be addressed on general location and numbers (each, miles, acres, etc.).

All grazing management management alternatives should include provisions and improvements that have been developed through rancher consultation.

At least one alternative should consider removing areas that are incompatible with forest management activities from the forest base acreage.

All alternatives should weigh forest resource values against other resource values to determine an equitable forest management level and the general types of forest management practices to be used in the resource area.

All alternatives should consider all forest product uses (e.g., firewood, house log, post/pole cutters, and commercial sawlogs).

All alternatives should identify the types of areas and conditions where appropriate suppression action and prescribed fire action should be applied.

Alternatives would provide for a range of off-road vehicle (ORV) use that would identify open areas for unlimited ORV use; identify areas with critical resource values that would be closed to ORV use; and provide for maximum restrictions necessary for resource protection.

All alternatives should provide for the protection of existing recreation sites.

At least one alternative should identify special management areas (e.g., river floating areas, popular hunting areas, and heavy recreation use areas) where management of the recreational values should receive priority over other uses.

Alternatives should protect fragile and unique resources.

Alternatives should promote stability and diversity in local and regional economy.

Alternatives should be responsive to resource issues and local, regional, and national concerns.

All alternatives should be reasonable to implement.

All alternatives should be compatible with other federal, state, and local land use plans; inconsistencies should be explained.

All alternatives should consider visual resource values an integral part of Bureau management in all programs.

All alternatives should comply with federal and state laws and regulations.

All alternatives should be developed with a systematic interdisciplinary approach to integrate considerations of physical, biological, economic, social, and environmental conditions.

All alternatives should ensure that management actions within wetland, and flood plain areas include measures to preserve, protect and if necessary restore their natural functions in compliance with Executive Orders 11988 and 11990.

All public lands in the resource area should be evaluated for disposal or retention.

All alternatives should consider land disposal needs and suitability (sales, exchanges, Recreation and Public Purpose grants, etc.); and acquisition of nonfederal lands where it would improve public land manageability. The emphasis on disposal and acquisition may vary slightly among alternatives.

All alternatives should generally use existing data for analysis.

All alternatives should be consistent with current mandates and policies.

APPENDIX B

ASSUMPTION AND ANALYSIS GUIDELINES

The assumption and analysis guidelines listed below were utilized in assessing the impacts to the alternatives.

The actions described under each alternative would be implemented for each alternative.

Projections of oil and gas activities are speculative at best. Technology and market conditions are changing rapidly. A 7-year period (1978 to 1985) is used for the average number of wells drilled each year.

Portions of the Rock Creek area of critical environmental concern (ACEC) would be drained by wells already drilled in the Graphite unit. Other portions could be drained by directional drilling from outside the western portion of the ACEC.

Because the northern Green River Basin is largely undeveloped, it is assumed that oil and gas exploration and development would continue as it has historically. This would constitute an average of about 45 wells drilled each year for about 20 years (Table 39). These wells would be drilled primarily within the high oil and gas potential areas (Map 2) and within or adjacent to currently producing areas (Map 20). An estimated 29 wells would be producers and 16 dry wells would be abandoned each year.

Acreage disturbances (Table 46, Average Surface Disturbance Acreages) are estimated at an average of 16.5 acres per producing well and 10.5 acres per nonproducing well.

More than 90 percent of past oil and gas activity has taken place west of the Green River, between LaBarge Creek and Cottonwood Creek. Assuming that future development would follow the same trend, analysis of impacts to big game habitat would be limited to affected hunt areas. Impacts to big game winter range would be essentially as under the preferred alternative.

All the disturbed areas for an abandoned well location would be reclaimed. Of producing wells and related access roads, an average of 11 acres would be reclaimed and 5.5 acres would remain disturbed until the end of production and then reclaimed. Stabilization of disturbed sites would occur within three years from the start of reclamation. Vegetation diversity and cover levels would take up to 20 years.

Producing oil and gas wells in older fields would be abandoned at a rate of four wells a year for about a 20-year period. Producing wells are expected to have an average 30-year production life.

TABLE 46

AVERAGE SURFACE DISTURBANCE ACREAGES

Type of Activity	Acres
Oil and Gas	
Wells, producing and abandoned (new)	5.0
Roads	5.5
Support facilities - pipelines and powerlines	6.0
Wells, producers (old)	1.0
Roads	4.0
Support facilities - pipelines and powerlines	0.5
Grazing	
Reservoir construction	1.0
Pipelines	1.0
Fencing	1.0
Wildlife	
Water Developments	-

No mining or development of leasable and locatable minerals other than oil and gas, would occur.

Crucial winter habitat would be the limiting factor for big game populations in this area and would, therefore, be the basis for determining future impacts.

The acreage of wildlife habitat disturbed represents only a portion of the impact to wintering animals. Increased human presence and activity during the winter period results in an additional loss of habitat effectiveness. To account for this, the disturbance acreage would be increased by a factor of three for antelope and mule deer, and five for elk.

Approximately 128,000 acres (about 50 percent) of sage grouse nesting areas are assumed to be within existing restricted areas.

Approximately 50 percent of the riparian areas are in a declining trend.

Timber stands would be restored to preharvest cover levels in 20 years within harvest.

The mortality rate would correspond inversely to the level of management/timber harvest, i.e., a higher level of management would result in a lower mortality rate over time and a constant harvest level would result in a constant mortality rate. This assumption and mortality projection is intended to show that varying mortality levels can be expected from the different alternatives. Actual mortality rates may vary due to unexpected increases in insect or disease levels or other external factors such as fire.

The silvicultural guidelines listed in Appendix E would be incorporated into the actions.

To quantify total impacts to the forest resource and the forest management program, all alternatives are compared to the unrestricted harvest potential found in the Affected Environment. This provides a comparative analysis of each alternative to the total program potential, as opposed to solely comparing alternatives to past trends.

The short term is generally described as being the next 10 years. The long term is any period beyond that.

APPENDIX C-1

WYOMING BLM STANDARD MITIGATION MEASURES FOR SURFACE-DISTURBING ACTIVITIES

The objectives of these mitigation measures are to reserve, for the Bureau, the right to modify the operations of all surface disturbing activities as part of our statutory requirements for environmental protection and to inform a potential lessee, permittee, or operator of the environmental conditions present in a given area. The measures are the Bureau's statewide standards for addressing environmental concerns and serve to alert the applicant or permittee of general requirements to be met prior to or during use of the public lands.

The following measures would be used in lieu of standard and special stipulations previously used during pre-permit activities for all Bureau authorized activities in Wyoming. These measures have been written to provide a basic standardized format with wording that will allow for the addition of specialized mitigation criteria following the submission of a detailed plan of development, or other project proposal and preparation of an environmental analysis.

SURFACE DISTURBANCE MITIGATION

Surface disturbance will be prohibited in any of the following areas or conditions. Modifications to this limitation may be approved in writing by the Authorized Officer.

1. Slopes in excess of 25 percent.
2. Within important scenic areas (Class I and II Visual Resource Management areas).
3. Within 500 feet of surface water and(or) riparian areas.
4. Within a quarter mile or visual horizon (whichever is closer) from an historic trails.
5. Construction with frozen material or during periods when the soil material is saturated, frozen, or when watershed damage is likely to occur.

Guidance

These SURFACE DISTURBANCE MITIGATION MEASURES will be included in all BLM authorizations. The intent is to inform interested parties (potential lessees, permittees, operators) that, when one or more of the five (1 through 5) environmental conditions exists, surface disturbing activities will be prohibited unless or until the permittee or his designated representative and the surface management agency (SMA) arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development and become a condition for approval when authorizing the action.

Specific criteria (e.g., 500 feet from water) have been established based upon the best information available. However, geographical areas and time periods of concern must be delineated at the field level (i.e., "surface water and(or) riparian areas" may include both intermittent and ephemeral water sources or may be limited to perennial surface water). These decisions, where possible, should be documented in the land use planning documents.

Modification of these mitigation measures must allow for other measures to be applied on a site specific basis, if necessary to mitigate the impacts of concern. Waiver of this stipulation must be based upon demonstration, through environmental analysis, plans of development, plans of operation, Application for Permit to Drill processing, etc., that adverse affects to the area or condition of concern will be mitigated or avoided.

WILDLIFE MITIGATION MEASURES

1. To protect important big game ungulate winter habitat, activities or surface use will not be allowed during the period from November 15

to April 30 within certain areas encompassed by the authorization. The same criteria applies to elk calving areas from the period of May 1 to June 30. This limitation does not apply to extended long term operation and maintenance of the project. Modifications to this limitation in any year may be approved in writing by the Authorized Officer.

2. To protect important raptor and(or) sage and sharp-tailed grouse nesting habitat, activities or surface use will not be allowed during the period from February 1 to July 31 within certain areas encompassed by the authorization. This limitation does not apply to extended long-term operation and maintenance of the project. Modification to this limitation in any year may be approved in writing by the Authorized Officer.
3. No activities or surface use will be allowed on that portion of the authorization area identified within (legal description) for the purpose of protecting (e.g., sage/sharp-tailed grouse strutting, and(or) other species/activity) habitat. Modifications to this limitation in any year may be approved in writing by the Authorized Officer.

Guidance

These WILDLIFE MITIGATION MEASURES are intended to provide two basic types of protection, seasonal restriction (1 and 2) and prohibition of activities or surface use (3). Legal descriptions will ultimately be required and should be measurable and legally definable. There are no minimum subdivision requirements at this time. The area delineated can and should be refined as necessary based upon current biological data prior to the time of plan processing and use authorization. The legal description must eventually become a condition for approval of the permit, plan of development and(or) other use authorization.

The seasonal restriction section of the mitigation identifies three groups of species and delineates two similar time frame restrictions. These two restrictions are big game ungulate and raptors/grouse. The big game ungulates including elk, moose, deer, antelope, and big horn sheep all require protection of crucial winter range between November 15 and April 30. Raptors including eagles, accipiters, falcons, buteos, osprey, ferruginous hawks, burrowing owls, and sage and sharp-tailed grouse all require nesting protection during periods between February 1 and July 31.

The prohibition of activity or surface use section of mitigation 2c is intended for protection of unique wildlife habitat areas or values that are limiting factors to life-cycle activities (e.g., sage grouse strutting grounds, known threatened and endangered species habitat, etc.) which cannot be protected using seasonal restrictions.

Modification of these mitigation measures must allow for other measures to be applied on a site specific basis, if necessary, to mitigate the impacts of concern. Waiver of this measure must be based upon demonstration, through environmental analysis, plans of development, plans of operation, Application for Permit to Drill processing, etc., that adverse affects to the area or condition of concern will be mitigated or avoided.

SPECIAL RESOURCE MITIGATION MEASURE

To protect (resource value), the District Manager reserves the right to prohibit activities or surface use (i.e., within a specific distance of the resource value or between date-to-date) in (legal subdivision). This limitation does not apply to extended long-term operation and maintenance of the project. Modifications to this limitation may be approved in writing by the Authorized Officer.

Example resource categories (select category and identify specific resource value):

1. Recreation areas.
2. Special historic features.
3. Special management areas.
4. Sections of major rivers.
5. Prior existing rights-of-way.
6. Occupied dwellings.

Guidance

This SPECIAL RESOURCE MITIGATION MEASURE is intended for use only in site-specific situations where one of the first two general mitigation measures will not adequately address the concern. The resource value, location, and specific restriction must be clearly identified. A detailed plan addressing specific mitigation and special restrictions on development will be required prior to development and will become a condition for approval in the permit, plan of development, or other use authorization.

Modification of this measure must allow for other mitigation to be applied on a site specific basis, if necessary, to mitigate the impacts of concern. Waiver of this measure must be based upon demonstration, through environmental analysis, plans of development, plans of operation, Application for Permit to Drill processing, etc., that adverse affects to the area or condition of concern will be mitigated or avoided.

NO SURFACE OCCUPANCY

No surface occupancy will be allowed on the following described lands (legal subdivision/area) because of (resource value).

Example resource categories (select category and identify specific resource values):

1. Recreation areas (campgrounds, historic trails, national monuments.
2. Major reservoirs/dams.
3. Special management areas (ACEC, wild and scenic rivers.

Guidance

The NO SURFACE OCCUPANCY MITIGATION MEASURE (NSO) is intended for use only when other mitigation is determined insufficient to adequately protect the public interest and(or) as an alternative to "no development" or "no leasing." The legal subdivision and resource value of concern must be identified and tied to a land use planning document. There will be no exceptions to this mitigation measure granted without amendment of the appropriate land use plan.

Exception(s) to the NSO measure will be subject to the same test used to initially justify its imposition. If the NSO measure is justified but, upon evaluation of site specific plans of development, it is found that less restrictive mitigation would adequately protect the public interest, then an exception to the NSO mitigation measure could be granted by the State Director through a land use plan amendment. The record must show that because conditions and uses have changed, less restrictive mitigation measures will protect the public interest.

The Wyoming State Office advises that when considering the "no development" or "no leasing" option, a rigorous test must be met and fully documented in the record. This test must be based on stringent standards described in the land use planning document. Since rejection of all development rights is more severe than the most restrictive mitigation measure, the record must show that consideration was given to development subject to reasonable mitigation, including No Surface Occupancy. The record must also show that other mitigation was determined to be insufficient to adequately protect the public interest. A "no development" or "no leasing" decision should not be made solely because it appears that conventional methods of development would be infeasible, especially where an NSO authorization may be acceptable to a potential permittee. In such cases the opportunity to accept or refuse an NSO authorization should be left to the potential permittee.

APPENDIX C-2

STANDARD PRACTICES APPLIED TO SURFACE-DISTURBING ACTIVITIES

The following are general standard operating procedures applied to surface-disturbing activities. These measures are applied, when necessary, to reduce environmental impacts. Some projects may require construction use plans and(or) erosion control revegetation and restoration plans (ERRP).

ROADS

Recognized roads, as shown on the Rock Springs District Office Transportation Plan, will be used when the alignment is acceptable for the proposed use. Generally, roads will be required to follow natural contours; be constructed in accordance with standards as described in BLM Road Standards and BLM Manual section 9113; and be reclaimed to BLM standards.

In order to control or reduce sediment from roads, guidance involving proper road placement and buffer strips to stream channels, graveling, proper drainage, seasonal closure, and in some cases, redesign or closure of old roads. Construction may be prohibited during periods when soil material is saturated, frozen, or when watershed damage is likely to occur.

On newly constructed roads and permanent roads, the placement of topsoil, seeding and stabilization will be required on all cut and fill slopes (unless conditions prohibit this (e.g., rock). No unnecessary side-casting of material (e.g., maintenance) on steep slopes will be allowed. Snow removal plans may be required while a road is used for access so that snow removal does not adversely affect reclamation efforts or resources adjacent to the road.

Reclamation of abandoned roads will include requirements for reshaping, recontouring, resurfacing with topsoil, installation of water bars, and drill seeding on the contour. The removal of structures such as bridges, culverts, cattleguards, and signs will be required. Stripped vegetation will be spread over the disturbance for nutrient recycling, where practical. Fertilization or fencing of these disturbances will not normally be required. Additional erosion control measures (e.g., fiber matting) and road barriers to discourage travel may be required.

Road closures may be needed during spring runoff periods, in elk wintering areas, or other critical areas.

WELL PADS AND FACILITIES

Abandoned sites must be satisfactorily rehabilitated (in accordance with a plan approved by BLM) by the lessee.

On well pads and larger locations, special attention will be given to parts of the surface use plan covering reclamation. This plan will include objectives for successful reclamation covering: soil stabilization, plant community composition, and desired vegetation density and diversity.

No surface disturbance is allowed on slopes in excess of 25 percent unless erosion controls can be ensured and adequate revegetation is expected. Detailed engineering proposals and revegetation and restoration plans will be required in these areas.

On producing locations, operators will be required to reduce slopes to original contours (not to exceed 3:1 slopes). Terraces or elongated water breaks (erosion control measures) will be required after slope reduction. Facilities will be required to approach zero runoff from the location until the area is stabilized (to avoid contamination and water quality degradation downstream). All unused portions of facilities or producing well locations will be resurfaced with topsoil and seeded with soil stabilizing species. Mulching, erosion control measures, and fertilization may be required to achieve acceptable stabilization.

Abandoned locations will be required to be recontoured to conform to the surrounding terrain. Construction of erosion and runoff control measures and placement of topsoil will be required after recontouring.

The collection and analysis of soil samples from disturbed areas may be required to determine reclamation potential, appropriate seed mixtures, and nutrient deficiencies. This will be the responsibility of the grantee or lessee. Testing (as determined by BLM) may include: pH, mechanical analysis, limiting salt content, nitrogen, phosphorus, and potassium.

Fertilization may be required if there is evidence of a nutrient deficiency. If needed to produce adequate germination and growth, the topsoil and selected seed species would be inoculated with soil microorganisms. The site will be drill seeded or broadcast (if slopes exceed 30 percent or contain 35 percent surface rock content). Mulching and fencing (unless deemed unnecessary due to low grazing pressure) will be required. Fences will be required to remain until reclamation is successful.

Snow fences, placed to increase snowfall depth over a reclaimed area, and reshaping to create shallow depressions (to catch surface runoff) may be required in areas receiving 10 inches or less of annual precipitation.

No sour gas lines will be located closer than one mile to a populated area or sensitive receptor. The applicants must use the best available engineering design (i.e., alignment, block valve type and spacing, pipe grade, etc.), best construction techniques (i.e., surveillance, warning signs, etc.) as approved by the Authorized Officer to minimize both the probability of rupture and radius of exposure in the event of an accidental pipeline release of sour gas. A variance from the one-mile distance may be granted by the Authorized Officer based on detailed site-specific analysis that would consider meteorology, topography, and special pipeline design and(or) construction measures. This analysis would ensure that populated areas and sensitive receptors would not be exposed to an increased level of risk.

PIPELINES AND COMMUNICATION LINES

Existing crowned and ditched roads will be used where possible to minimize surface disturbances.

Where possible, clearing of pipeline and communication line rights-of-way will be accomplished with the least degree of disturbance to topsoil. Where topsoil removal is necessary, it will be stockpiled (windrowed) and respread over the disturbance after construction and backfilling are completed. Vegetation removed from the right-of-way will also be required to be respread to provide protection, nutrient recycling, and a natural seed source.

To promote soil stability, the compaction of backfill will be required (not to extend above the original ground level after the fill has settled). Water bars, mulching, and terracing will be required, as needed, to minimize erosion. Instream protection structures (e.g., drop structures) may be required in drainages crossed by a pipeline to prevent erosion.

The fencing of linear disturbances near livestock watering areas (distance determined on site-specific basis) may be required.

If linear facilities follow the same right-of-way for all or part of the route, they will generally be required to be constructed so that only one reclamation effort is required. Generally, they will be required to be constructed either concurrently or during the same field season.

AIR QUALITY PROTECTION MEASURES

As major sources of air pollutant emissions are planned, special air quality protection related stipulations are added to BLM grants of rights-of-way necessary for construction. In addition, the BLM coordinates with the Wyoming Department of Environmental Quality/Air Quality Division (WDEQ/AQD) during the issuance of permits to construct emission sources. This coordination often results in the technical review of applications for permits and commenting on or requesting the addition of stipulations to these permits.

The release of hazardous air contaminants, particularly the emissions from sour natural gas sweetening plants (a process used to remove H_2S from natural gas resulting in the emission of sulfur dioxide), has caused much public concern. BLM requires industry to prepare detailed analyses of risks involved with the development of sour gas pipelines and treatment facilities. These analyses are designed to project impacts both to the public and to resource values. Plant siting will be scrutinized to ensure that only areas with the least potential for the transport of pollutants to the wilderness are considered. To aid in achieving these goals, BLM will consult with the State of Wyoming, the U.S. Forest Service, industry, and the public to ensure that the most technically sound, environmentally balanced, and economically feasible decisions are made.

RECLAMATION

The objectives for reclamation efforts emphasize: 1) stabilization through establishment of ground cover; 2) establishment of vegetation consistent with land use planning; and 3) reduction of visual contrast.

Reclamation will be required on all disturbed areas. On roads left intact for access purposes, the stabilization of all disturbed area except the running surface will be required.

Only areas needed for construction will be allowed to be disturbed. Reclamation (by the lessee or grant holder) will be initiated as soon as possible after a disturbance occurs. Continued efforts will be required until satisfactory vegetation cover is established and the site is stabilized.

Topsoil

Before a surface disturbing activity is authorized, the BLM will determine total topsoil depth. The amount of topsoil to be removed, along with topsoil placement areas, will be specified in the authorization. The uniform distribution of topsoil over the area to be reclaimed will be required, unless conditions warrant a varying depth. On large surface-disturbing projects (e.g., gas processing plants) topsoil will be stockpiled, mulched, and seeded to reduce erosion. Where feasible, topsoil stockpiles will be required to be designed to maximize surface area to reduce impacts to soil microorganisms. Areas used for spoil storage will be required to be stripped of topsoil before spoil placement. The replacement of topsoil after spoil removal will be required.

Temporary disturbances which do not require major excavation (e.g., pipelines and communication lines) may be stripped of vegetation to ground level using mechanical treatment, leaving topsoil intact and root mass relatively undisturbed.

Seeding

Only plant species adaptable to local soil and climatic conditions will be utilized in revegetation efforts. On all areas to be reclaimed, seed mixtures will be required to be site-specific and will be required to include species promoting soil stability. Livestock palatability and wildlife habitat needs will be given consideration in seed mix formulation. Interseeding, secondary seeding, or staggered seeding may be required to accomplish revegetation objectives. A friable, but firm seed bed will be required prior to seeding. Drill seeding will be required unless conditions indicate that broadcast seeding is necessary (e.g., greater than 30 percent slope or greater that 35 percent rock content). During rehabilitation of areas in important wildlife habitat, provision will be made for the establishment of native browse and forb species, if determined to be beneficial for the habitat affected.

Follow-up seeding or corrective erosion control measures may be required on areas of surface disturbance which experience reclamation failure.

Treatments

Trees, shrubs, and ground cover (not to be cleared from rights-of-way) will require protection from construction damage. Backfill will be required to be replaced in a similar sequence and density to preconstruction condition. The restoration of normal surface drainage will be required.

Any mulch used will be free from mold, fungi, or noxious weed seeds. Mulch may include native hay, small grain straw, wood fiber, live mulch, cotton, jute, synthetic netting, and rock. Straw mulch should contain fibers long enough to facilitate crimping and provide the greatest cover.

The grantee or lessee will be responsible for the control of all noxious weed infestations on surface disturbances. Control measures will adhere to those allowed in the Rock Springs District Noxious Weed Control EA (USDI 1982a) or the Regional Northwest Area Noxious Weed Control Program EIS (USDI 1985c).

APPENDIX C-3

OIL AND GAS OPERATIONS

GEOPHYSICAL EXPLORATION

Oil and gas can be discovered by either direct or indirect exploration methods such as the mapping of rock outcrops, seeps, borehole data, and remote sensing data. In many cases indirect methods, such as seismic, gravity, and magnetic surveys are required to delineate subsurface features which may contain oil and gas.

Gravity Surveys

Gravitational prospecting detects micro-variations in gravitational attraction caused by the differences in the density of various types of rock. Data derived from gravity surveys are used to generate anomaly maps from which faults and general structural trends can be interpreted. Gravity surveys are generally not considered definitive due to the many data corrections required (e.g., terrain, elevation, latitude, etc.) and the poor resolution of complex subsurface structures. The instrument used for gravity surveys is a small portable device called a gravimeter. Several types of gravimeters have been developed and virtually all can be easily carried by an individual. Generally measurements are taken at many points along a linear transect and the gravimeter is transported either by backpack, helicopter, or off-road vehicle (ORV). The only surface disturbance associated with gravity prospecting is that caused by the ORV, if used.

Geomagnetic Surveys

Magnetic prospecting is most commonly used for locating metallic ore bodies but is used to a limited extent in oil and gas exploration. Magnetic surveyors use an instrument called a magnetometer to detect small magnetic anomalies caused by mineral and lithologic variations in the earth's crust. Magnetic surveys can detect large trends or lineaments in basement rocks and the approximate depth to those basement rocks, but in general magnetic surveys provide little specific data to aid in petroleum exploration. Again many data corrections are required to obtain reliable information and maps generated from magnetic data lack resolution and are considered preliminary. Magnetometers vary greatly in size and complexity and in general most magnetic surveys are conducted from the air by suspending a magnetometer under an airplane. Magnetic surveys conducted on the ground are nearly identical to gravity surveys and surface disturbance is minimal to nonexistent.

Seismic Reflection Surveys

Seismic prospecting is the best and most popular indirect method currently utilized for locating subsurface structures which may contain oil and(or) gases. Seismic energy (shock waves) is induced into the earth using one of several methods. As these waves travel downward and outward they encounter various strata, each having a different seismic velocity. As the wave energy encounters the velocity interface between stratigraphic layers where the lower stratum is of lower velocity some of the seismic energy is reflected upward. Sensing devices commonly called geophones are placed on the surface to detect these reflections. The geophones are connected to a data recording truck which stores data on magnetic tape. The time required for the shock waves to travel from the shot point down to a given reflector and back to the geophone can be related to depth by multiplying velocity by one half the travel time. The average velocity for the section between the surface and a given reflector must be estimated if no bore hole seismic data is available. This velocity estimation is the source of many errors in the seismic interpretation of wildcat areas. There are many methods available today which an explorationist can use to induce the initial seismic energy into the earth. All methods require preliminary surveying and laying of geophones.

The thumper and vibrator methods pound or vibrate the earth to create a shock wave. Usually four large trucks are used, each equipped with vibrator pads (about four-foot square). The pads are lowered to the ground and vibrators on all trucks are triggered electronically from the recording truck. Information is recorded and then the trucks move forward a short distance and the process is repeated. Less than 50 square feet of surface area is required to operate the equipment at each test site.

The drilling method utilizes truck-mounted drills which drill small-diameter holes to depths of 100 to 200 feet. Four to twelve holes are drilled per mile of line. Usually, a 50-pound charge of explosives is placed in the hole, covered, and detonated. The detonated explosives send energy waves below the earth's surface which are reflected back to the surface from various subsurface rock layers. The holes are drilled in a linear fashion, forming a line that can be many miles in length. In rugged topography, a portable drill is sometimes carried in by helicopter. Charges are placed in the hole as in a truck-mounted operation. Another portable technique is to carry the charges in a helicopter and place the charges on wooden sticks, or lath, three feet or so above the ground. Charges used are either 2½ or 5 pounds. Usually, 10 charges in a line on the ground are detonated at once. In remote areas where there is little known subsurface data, a series of short seismic lines may be required to determine the regional dip and strike of subsurface formations. After this, seismic lines will be aligned relative to the regional structure to make seismic interpretation more accurate. The seismic sensors and energy source are located along lines on a one- to two-mile grid. Although alignment may be fairly critical, spacing of the lines can often be changed one-quarter mile on a one-mile grid before the results will significantly affect the investigation program.

A typical drilling seismic operation may utilize 10 to 15 men operating five to seven trucks. Under normal conditions, three to five miles of line can be surveyed each day using the explosive method. The vehicles used for a drilling program include several heavy truck-mounted drill rigs, water trucks, a computer recording truck, and several light pickups for the surveyors, shot hole crew, geophone crew, permit man, and party chief. Public roads and existing private roads and trails are used. Off-road cross-country travel is also necessary. Motor graders and(or) dozers may be required to provide access to remote areas. Several trips a day are made along a seismograph line; this usually establishes a well defined two-track trail. Drilling water, when needed, is usually obtained from private landowners or local city officials (USDI 1981a).

Geophysical Management (Permitting Process)

Geophysical operations on and off an oil and gas lease are reviewed by the federal surface management agency.

The responsibilities of the geophysical operator and the BLM District Manager during geophysical operations are as follows (USDI 1978):

1. Geophysical Operator - The operator is required to file, in person or by mail, a "Notice of Intent to Conduct Oil and Gas Exploration Operations" for all operations on public lands administered by BLM. Standard forms (WY-04-3045-6) for this purpose are available in all BLM District Offices. The notice includes maps showing the location of the line, and all access routes, and must be filed in the BLM Resource Area Office before operations begin.

   The operator is also required to be bonded. A copy of the bond or other evidence of satisfactory bonding shall accompany the "Notice of Intent." Proper bonding can include a nationwide or statewide oil and gas bond with a rider for geophysical exploration or a $5,000 individual surety bond filed with the District Manager.

   Once the Notice of Intent has been filed, a prework conference or field inspection (if required) is conducted. Any special written instructions, orders, or approvals that may be given by the area manager at this prework conference must be complied with by the operator.

   Surface disturbing activities, such as bulldozing, require written approval by the area manager. Operators may be required to submit an archeological survey if dirt work is contemplated. The operator is required to comply with all applicable federal, state, and local laws such as the Federal Land Policy and Management Act of 1976, Historic Preservation Act of 1966, Threatened and Endangered Species Act, etc.

   Any changes in the original Notice of Intent must be submitted in writing to the area manager. Written approval must be secured before activities proceed.

When operations are completed, the operator is required to file a Notice of Completion of Geophysical Exploration, after any required rehabilitation work is completed.

2. BLM Area Manager - The area manager is required to contact the operator immediately after the Notice of Intent is filed and explain the terms of the Notice, including the operating procedures to be followed, all current laws, and all BLM administrative requirements. A prework conference or field inspection is conducted and written instructions or orders given to the operator. The area manager is responsible for the examination of resource values and the development of appropriate surface protection and reclamation measures.

   Final inspection following filing of the Notice of Completion is also required of the area manager.

State Standards

In Wyoming, the operator is required to register with the State. State standards for plugging shot holes, personnel safety, etc., will be followed.

Mitigation

Seasonal restrictions are imposed to reduce conflicts with wildlife, watershed damage, and hunting activity.

The most critical management practice is compliance monitoring during and after seismic activity. Compliance inspections during the operation ensure that stipulations are being followed. Compliance inspections upon completion of work ensure that the lines are clean and the drill holes are properly plugged.

OIL AND GAS LEASING

The Mineral Leasing Act provides that all public lands are open to oil and gas leasing unless a specific order has been issued to close the area. Oil and gas leases may be issued competitively or noncompetitively. Competitive leases are for lands inside known geologic structures (KGS). A KGS is technically the geologic trap in which a productive accumulation of oil or gas has been discovered by drilling. All presumptively productive acreage is included within the KGS limits. A competitive lease sale is scheduled at two month intervals to sell any unleased KGS lands. Each sale is conducted by sealed bid. For each bid deemed adequate and accepted, a lease is issued. Competitive leases are issued for a term of five years or for as long as oil and or gas is produced.

Noncompetitive leases are issued for lands lying outside of KGSs. These leases are of two types: the simultaneous offering list and those that are open land offers.

Following termination of old leases, the land is relisted on simultaneous lists published at two month intervals. Appropriate mitigations, as listed in appendix C-1, are added to leases for resource protection prior to listing. Once a list is approved and advertised, all applications received during the filing period are considered to have been filled simultaneously. An applicant may file only one application per tract. Each application must be accompanied by a $75.00 filing fee and advance lease rental. A lottery-type drawing is held and one application is drawn for each tract. If a tract has never been leased or a simultaneous tract does not receive an application when advertised for lease, it becomes an open land offer and is available to the first applicant filing for that tract. Noncompetitive leases are issued for 10 years or for as long as oil or gas is produced.

The federal government receives yearly rental fees on nonproducing leases. Royalty on production is received on producing leases, one half of which is returned to the State of Wyoming.

DRILLING PERMIT PROCESS

A federal lessee or operator is governed by procedures set forth by the Onshore Oil and Gas Order No. 1, "Approval of Operations on Onshore Federal and Indian Oil and Gas Leases," issued under 43 CFR 3164. Operating Order No. 1 lists the following as pertinent points to be followed by the lessee or operator: notice of staking (NOS); application for permit to drill (APD), which includes a multi-point surface use and operations plan; approval of subsequent operations; well abandonment; water well conversion; responsibilities on privately owned surface; and reports and activities required after well completion.

1. Notice of Staking (NOS) - After the company makes the decision to drill a well, they must

decide whether to submit an NOS or application for permit to drill (APD). The NOS consists of an outline of what the company intends to do including a location map and sketched site plan. The NOS is then used as a document to review any conflicts with known critical resource values, and also used at the on-site inspection to provide the preliminary data to assess what additional items are necessary to complete the APD.

2. Application for Permit to Drill (APD) - The operator or lessee may submit a completed APD in lieu of notice of staking, but in either case no surface activity is conducted in conjunction with the drilling until the APD is approved by the BLM.

If the APD option is used, an APD is submitted to the BLM and a field inspection is held with the operator and any other interested party. The purpose of the presite field inspection is to evaluate the operator's plan, to assess the situation for possible impacts (surface and subsurface), and to formulate resource protection stipulations. To lessen environmental impacts, a proposed site may be moved, reoriented, or redimensioned, within certain limits, at the presite inspection. The proposed access road may also be rerouted (USDI 1981a). If necessary, site-specific mitigations are added to the APD for protection of surface and (or) subsurface resource values in the vicinity of the proposed activity.

The BLM is responsible for preparing environmental documentation necessary to satisfy the National Environmental Policy Act requirements and provide any mitigation measures needed to protect the affected resource values.

Consideration is also given to the protection of ground water resources. Such protection is described in appendix C-4.

When final approval is given by the BLM, the operator may commence construction and drilling operations. Approval of an APD is valid for one year. If construction does not begin within one year, the stipulations must be reviewed prior to approving another APD (USDI 1981a).

Economic conditions dramatically affect drilling activity and at the present time oil and gas markets are very depressed. However, an upturn in the petroleum market could create a significant increase in the number of drilling wells within the resource area as almost the entire area has moderate to high oil and gas potential.

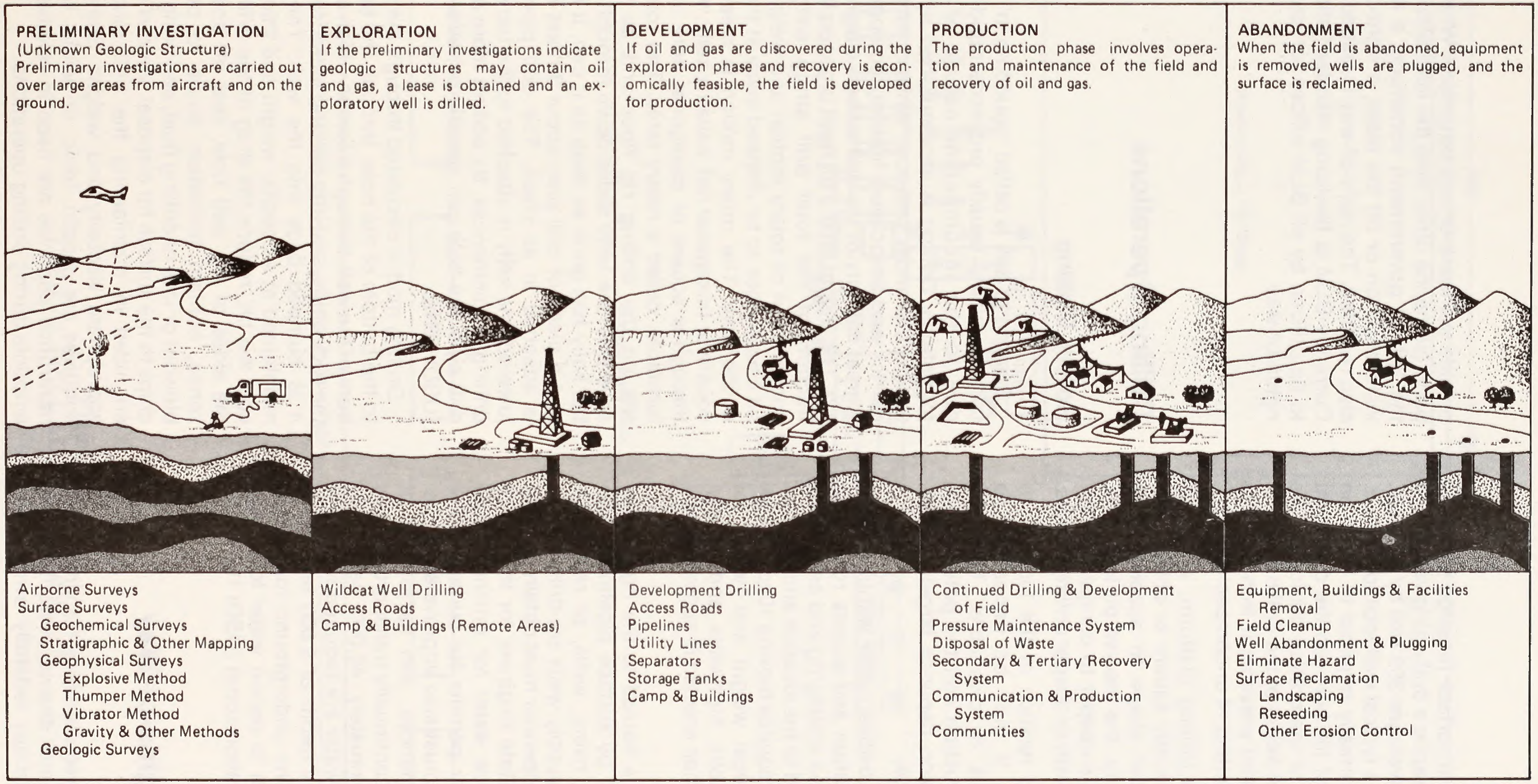
In the resource area, drilling depths range from a few thousand feet in the Big Piney-LaBarge area to over 18,000 feet in the Overthrust. The vast majority of the wells drilled in the resource area require 30 to 90 days to drill and complete. Some deep wells (17,000 to 20,000 feet) may require a year or more to drill and complete.

Surface Disturbance Associated With Exploratory Drilling

Upon receiving approval to drill the proposed well, the operator moves construction equipment over existing roads to the point where the access road will begin (Figure 10). Generally, the types of equipment include dozers (track-mounted and rubber-tired), scrapers, and motor-graders. Moving equipment to the construction site requires moving several loads (some overweight and overwidth) over public and private roads. Existing roads and trails are improved in places and occasionally culverts and cattleguards are installed if required.

The length of the access road varies. Generally the shortest feasible route is selected to reduce the haul distance and construction costs. Environmental factors or the landowner's wishes may dictate a longer route. In rough terrain, the type of construction is sidecasting (using the material taken from the cut portion of the road to construct the fill portion); slightly less than one-half of the road bed is on a cut area and the rest is on a fill area. Roads are usually constructed with a 18-foot-wide running surface (in relatively level terrain). Soil texture, steepness of the topography, and moisture conditions may dictate surfacing the access road in some places but generally not for the entire length. The total acreage disturbed for each mile of access road constructed varies significantly with the steepness of the slope (USDI 1985b).

Well locations are constructed by one of three different general types of construction, but in every case, all soil material suitable for plant growth is first removed from areas to be disturbed and stockpiled in a designated area. Sites on flat terrain usually require little more than removing the topsoil material and vegetation. Drilling sites on ridge tops and hillsides are constructed by cutting and filling portions of the location. The majority of the excess cut material is stockpiled in an area that will allow it to be easily recovered for rehabilitation. It is important to confine extra cut material in stockpile rather than cast it down hillsides and drainages where it cannot be recovered for rehabilitation.



PRELIMINARY INVESTIGATION
(Unknown Geologic Structure)
Preliminary investigations are carried out over large areas from aircraft and on the ground.

- Airborne Surveys
- Surface Surveys
  - Geochemical Surveys
  - Stratigraphic & Other Mapping
  - Geophysical Surveys
    - Explosive Method
    - Thumper Method
    - Vibrator Method
    - Gravity & Other Methods
  - Geologic Surveys

EXPLORATION
If the preliminary investigations indicate geologic structures may contain oil and gas, a lease is obtained and an exploratory well is drilled.

- Wildcat Well Drilling
- Access Roads
- Camp & Buildings (Remote Areas)

DEVELOPMENT
If oil and gas are discovered during the exploration phase and recovery is economically feasible, the field is developed for production.

- Development Drilling
- Access Roads
- Pipelines
- Utility Lines
- Separators
- Storage Tanks
- Camp & Buildings

PRODUCTION
The production phase involves operation and maintenance of the field and recovery of oil and gas.

- Continued Drilling & Development of Field
- Pressure Maintenance System
- Disposal of Waste
- Secondary & Tertiary Recovery System
- Communication & Production System
- Communities

ABANDONMENT
When the field is abandoned, equipment is removed, wells are plugged, and the surface is reclaimed.

- Equipment, Buildings & Facilities Removal
- Field Cleanup
- Well Abandonment & Plugging
- Eliminate Hazard
- Surface Reclamation
  - Landscaping
  - Reseeding
  - Other Erosion Control

Figure 10
SEQUENCE OF OPERATIONS IN AN OIL AND GAS FIELD

The amount of level surface required for safely assembling and operating a drilling rig varies with the type of rig, but averages 300 feet by 350 feet. Figure 11 illustrates a typical well location layout. At least 25 feet is normally required to be on an area of cut instead of fill, between the drill point and the outer edge of the drilling platform. This ensures that the foundation of the drilling derrick is on solid ground and prevents it from leaning or toppling due to settling of uncompacted soil.

In addition to the drilling platform, a reserve pit is constructed, usually square or oblong, but sometimes in another shape to accommodate topography. Generally, the reserve pit is 8 to 12 feet deep, but may be deeper to compensate for smaller length and width or deeper drilling depths.

Depending on the relation of the location to natural drainages, it may be necessary to construct water bars or diversions. The area disturbed for construction and the potential for successful revegetation depends largely on the steepness of the slope.

Usually drilling activities begin within a week or two after the location and access road have been constructed. The drilling rig and associated equipment are moved to the location and erected. Moving a drilling rig requires moving 10 to 25 truck loads (some over legal weight and height) of equipment over public highways and private roads. The derrick when erected is approximately 160 feet high.

Water for drilling is hauled to the rig storage tanks or transported by surface pipeline. Water sources are usually rivers, wells, or reservoirs. Occasionally, water supply wells are drilled on or close to the site. The operator must obtain a permit from the Wyoming State Engineer for the use of surface or subsurface water for drilling. When BLM holds the water permits for surface water (stock ponds), BLM must also approve such use. When drilling commences, and as long as it progresses, water is continually transported to the rig location. Approximately 40,000 barrels or 1,680,000 gallons of water are required to drill an oil or gas well to the depth of 9,000 feet. More water is required if the underground formations are fractured enough to permit water to escape into them (lost circulation zone) (USDI 1981a).

Issuance of Rights-of-Way

Rights-of-way are required for all facilities, tank batteries, pipelines, truck depots, powerlines, and access roads that occupy federally owned land outside the lease or unit boundary. When a third party (someone other than the lessee/operator or the federal government) constructs a facility or installation on or off the lease, a right-of-way is also required. The right-of-way is issued by BLM. Currently BLM is finalizing standard stipulations to be utilized by all BLM offices for issuance of rights-of-way.

Drilling Operations

Rotary Drilling

Starting to drill is called "spudding in" the well. Initially drilling usually proceeds rapidly mainly due to the incompetent nature of shallow formations. Drilling is accomplished by rotating special bits under pressure. While drilling, the rig derrick and associated hoisting equipment bear a great majority of the drill string's weight (Figure 12). The weight on the bit itself is generally a small fraction of the total drill string weight. The combination of rotary motion and weight on the bit causes rock to be chipped away at the bottom of the hole. The rotary motion is created by a square or hexagonal rod, called a kelly, which fits through a square or hexagonal hole in a large turntable, called a rotary table. The rotary table sits on the drilling rig floor and as the hole advances, the kelly slides down through it. When the kelly has gone as deep as it can, it is raised, and a piece of drill pipe about 30 feet in length is attached in its place. The drill pipe is then lowered, the kelly is attached to the top of it, and drilling recommences. By adding more and more drill pipe, the hole can steadily penetrate deeper (USDI 1981a).

Drilling mud is circulated through the drill pipe to the bottom of the hole, through the bit, up the bore of the well, through a screen which separates the rock chips, and into holding tanks from which it is pumped back into the well. The mud is maintained at a specific weight and thickness to cool the bit, reduce the drag of the drill pipe on the sides of the well hole, seal off any porous zones, contain formation fluids to prevent a blowout or loss of drilling fluid, and bring the rock chips to the surface for disposal. Various additives are used in maintaining the drill mud at the appropriate viscosity and weight. Some of the additives are caustic, toxic, or acidic, but these hazardous additives are used in relatively small amounts during drilling operations.

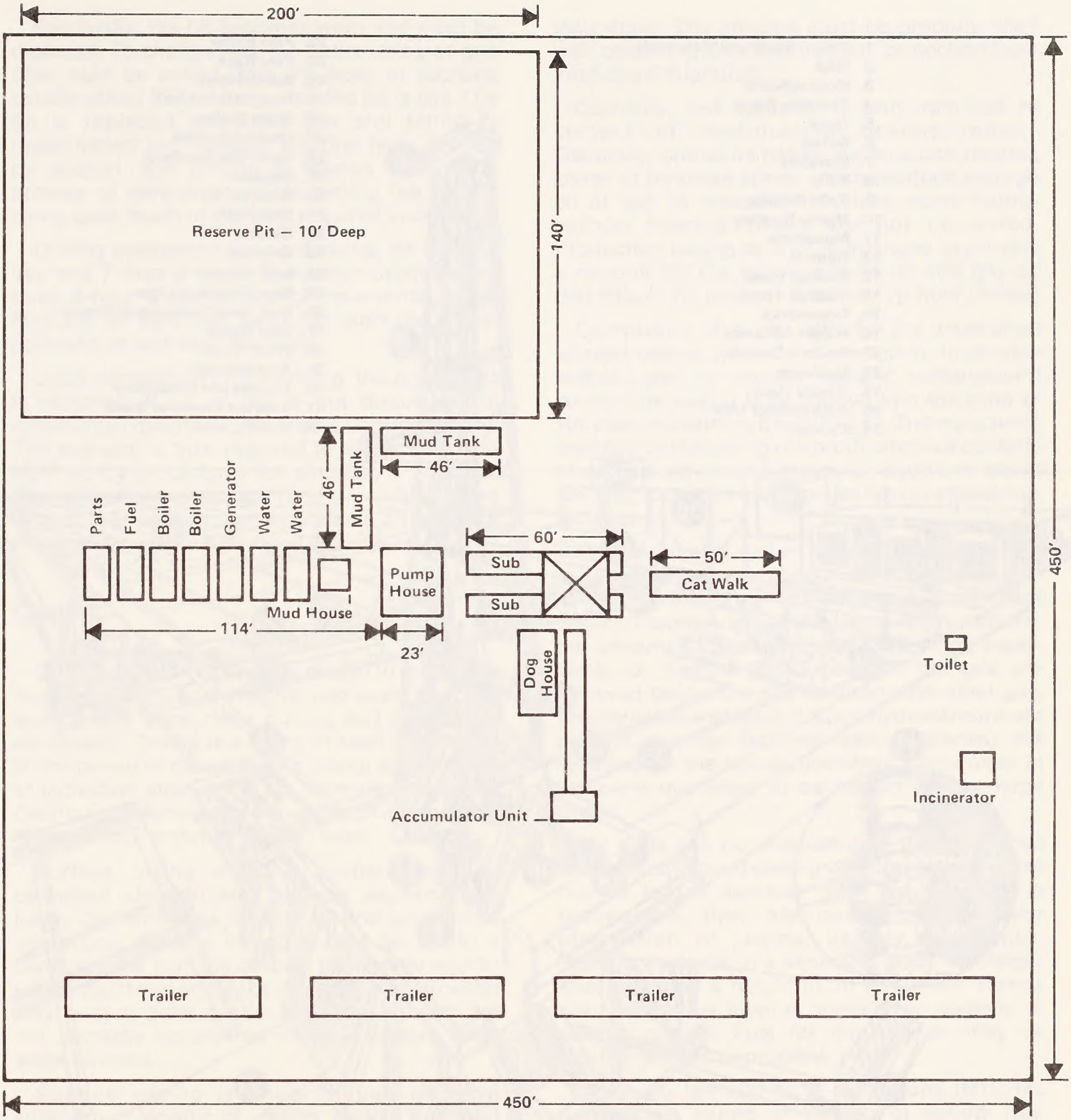


Figure 11
TYPICAL WELL LOCATION LAYOUT

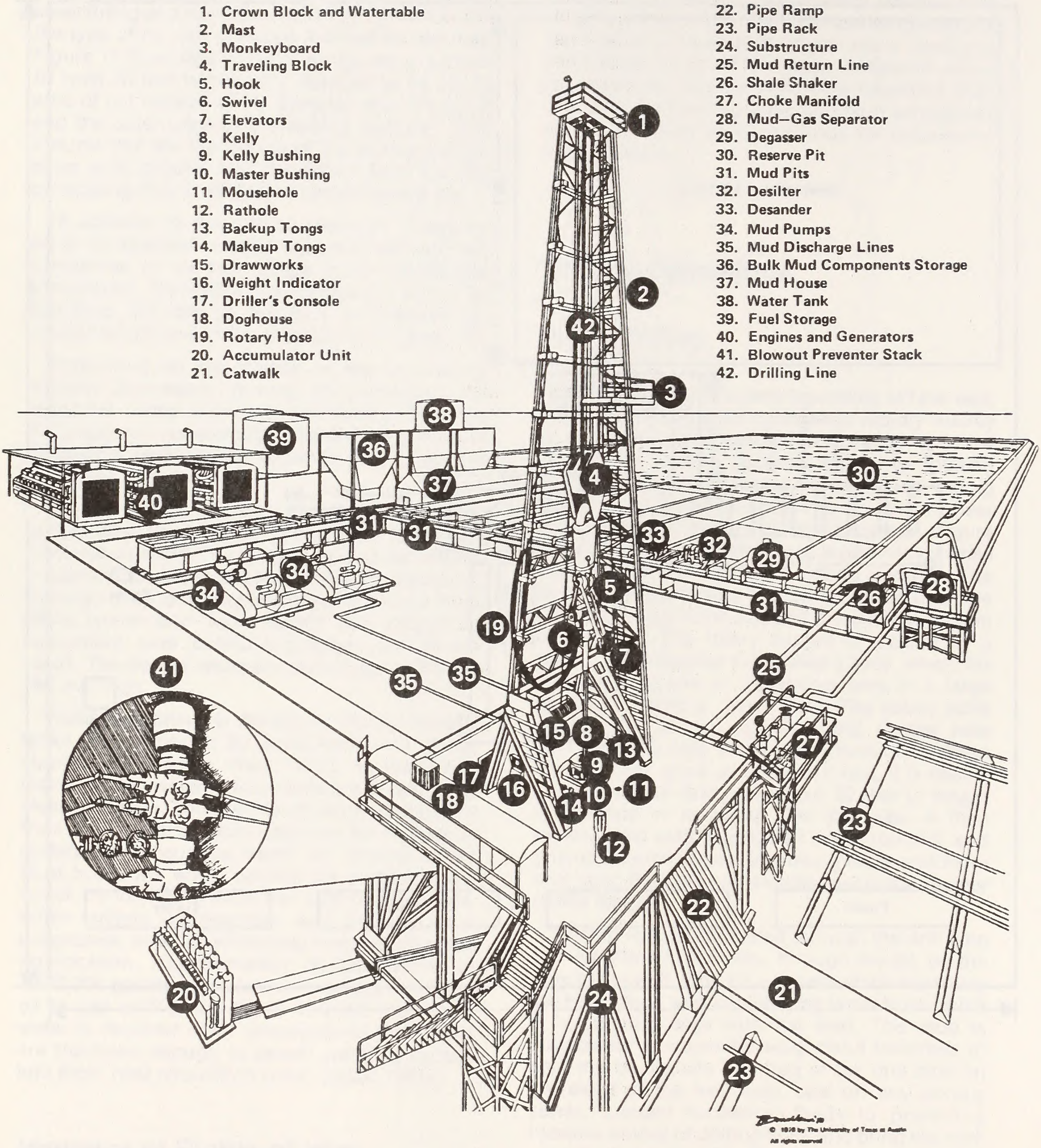


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Figure 12
THE ROTARY RIG AND ITS COMPONENTS

Eventually, the bit becomes worn and must be replaced. To change bits, the entire string of drill pipe must be pulled from the hole, in sections usually about 90 feet long, until the bit is out. The bit is replaced and then the drill string is reassembled and lowered into the hole, section by section, and drilling is started again. The process of removing and reinserting the drilling string uses much of the time required in drilling.

Drilling operations are continuous, 24 hours a day and 7 days a week. The crews usually work three 8-hour shifts or two 12-hour shifts a day. Pickups or cars are used for workers' transportation to and from the sight.

Upon completion of the drilling, the equipment is removed. If oil or gas is not discovered in commercial quantities, the well is considered dry. The operator is then required to follow state and BLM policy procedures for plugging a dry hole. The drill site and access road are rehabilitated in accordance with the stipulations attached to the approval of the well site (USDI 1981a).

Casing

Various types of casing are placed in the drilled hole to enhance hole integrity and to anchor both surface and subsurface drilling and production equipment. Casing is a string of steel pipe which is comprised of many lengths (about 40 feet long) of individual pipe which are "screwed" together. Casing is cemented into the well to protect against fluids or rock entering the well bore.

Surface casing which is properly set and cemented also protects surface aquifers from being contaminated by drilling and production operations. Surface casing should be set to a depth greater than the deepest fresh water aquifer which could reasonably be developed. Fresh water may exist at great depths but these aquifers are not normally considered to be important fresh water sources.

Surface casing is large enough to allow subsequent lengths of smaller casing to be set as the well is drilled deeper. Cement is placed in the annulus of the surface casing from casing shoe to ground level. That is, the entire space between the outside of the casing and the borehole wall is filled. Generally only the bottom few hundred feet of intermediate or production casing is cemented which often leaves several thousand feet of open hole behind some casing strings. Casing in open hole (uncemented annulus) is not considered adequate to protect zones of fresh water or minerals from contamination. The annulus must be properly filled with cement to provide adequate protection from inter-zonal migration.

Currently, the operator is only required to cement off "hydrocarbon bearing zones." Generally, operators define hydrocarbon bearing zones to be those zones which produce enough oil or gas to measure, therefore, some hydrocarbon bearing zones are not cemented. Production casing or liner is intended to provide a conduit for the production of oil and gas so that little or no product is lost in "up-hole zones."

Completion of a well calls for the installation of steel casing, which is cemented in, to provide stability and to protect specific underground zones. The casing is perforated into the zone or structure containing the oil or gas. The equipment installed on the casing of a producing well consists of various valves and pressure regulators which are used to control the oil or gas flow to production facilities.

Pipeline quality gas at the wellhead requires a minimum of processing equipment. As the quality of gas decreases with the increased presence of water, dissolved solids, or liquid hydrocarbons, the amount of processing equipment increases. Water or liquid hydrocarbons in the gas are removed before the gas is mixed with other gas, usually at the wellhead. If liquid hydrocarbons are present, storage facilities (tank batteries) are required for the liquids until they accumulate in sufficient quantities to be hauled out by large trucks.

Oil wells can be completed as flowing (those wells with sufficient underground pressure to raise the oil to the surface) or if the pressure is inadequate, they are completed with the installation of pumps, usually pumpjacks. Pumpjacks come in a variety of sizes, the larger ones reaching a height of 30 to 40 feet. Pumps are powered by internal combustion engines or electric motors. Fuel for the engines may be casinghead gas or propane.

Wyoming law and BLM regulations (NTL-4A) prohibit the flaring or venting of natural gas. Exceptions allowed by the Wyoming Oil and Gas Commission are: 1) during testing of a new well, or 2) when the amount of gas produced with the oil is so small that pipeline construction is not practical. Otherwise, if a well produces both oil and gas, provisions for shipping the gas must be made before oil production can continue.

The production equipment (heater-treater, holding facility for production water (if any is present), and tank battery) are either placed on a portion of the location (on cut rather than fill) or located a short distance from the wellhead along the access road. Production facilities are usually painted black, silver, or with company colors, unless otherwise specified. The heater-treater and tanks are surrounded by earthen dikes to contain accidental spills. Either all the facilities may be fenced, or only the production water pit may be fenced (USDI 1981a).

Oil and Gas Exploratory Units

Surface use in an oil or gas field may be affected by unitization of the leaseholds. In areas of federally owned minerals, an exploratory unit is formed before a wildcat exploratory well is drilled. The boundary of the unit is based on geologic data. The developers of the unit can enter into an agreement to develop and operate as a unit, without regard to separate lease ownerships. Costs and benefits are allocated according to agreed-upon terms.

Unitization reduces the surface use requirements because all wells are operated as though on a single lease. Duplication of field processing facilities is minimized, because development and operations are planned and conducted by a single operator. Often powerlines are distributed throughout the unit and diesel engines are converted to electric motors. Unitization may also involve wider spacing than usual, resulting in fewer wells. Access roads are usually shorter and better organized (USDI 1981a).

Enhanced Recovery Projects in the Pinedale Resource Area

An oil reservoir typically contains oil, gas, and water trapped within fine rock pores under tremendous pressures. Because of the pressure, much or all of the gas is dissolved in the oil. "Primary drive" is by the expansion of pressurized water and gas in solution which forces oil out of the pores into the well and up to the surface. Oil flowing out of the rock drains energy from the formation; pressure in the reservoir begins to slowly decline; primary drive diminishes and the production rate falls. As reservoir pressures continue to drop, gas in the oil escapes, forming bubbles in the rock pores. This further retards the flow of oil and, in time, flow all but ceases. At this point, as much as 80 percent of the original oil may still remain in the reservoir.

To keep oil flowing, pressure is required. Pumps may lift oil to the surface, but only pressure within the reservoir can force oil into the bottom of the well bore. To accomplish this, gas may be injected; but the most popular "secondary recovery" technique is waterflooding. Water is injected into the producing formation to replace the volume of oil extracted and provides a driving force as well as maintains reservoir pressure. In reservoirs that are receptive to it, waterflooding may push out an additional 30 percent of the original oil in place. Water, which does not mix with oil, generally leaves about half the original oil behind in the form of small droplets trapped by capillary forces in the rock pores. Releasing oil that water alone will not move requires either chemicals, solvents, or heat. But, water flooding is not a last ditch remedy applied only to dying reservoirs. Water injection wells may be drilled in newly discovered fields, along with development wells to maintain pressure as early as possible and lengthen the life of the reservoir.

Carbon dioxide (CO_2) is also injected into oil reservoirs, sometimes after waterflooding, to recover more oil. Ideally, for most efficient displacement, CO_2 should mix with the oil; but, it does this only gradually, if at all. Moving through the reservoir, CO_2 will extract some of the lighter hydrocarbons from the oil; and as it becomes enriched with these, it achieves a composition which allows it to mix with the oil. From this point on, a "miscible flood" is achieved which should displace virtually all of the oil from the rock matrix.

Among thermal processes, steam accounts for the bulk of recovered oil. Steam recovers 77 percent of all oil produced by enhanced recovery methods. Unlike chemicals, which alter the relationship of oil to the flooding medium and to the reservoir rock, steam helps heavy oil to flow by reducing its viscosity, and by thermal expansion within the reservoir. Steam distillation also assists in moving oil, particularly lighter oils.

There are 12 unitized enhanced recovery projects in 11 separate fields that are currently in operation within the resource area. All projects are using waterflooding as the primary method of recovery. In the McDonald Draw and Big Piney fields, the waterflood was complimented initially with external gas injection to further increase the recovery of oil. Waterflooding and steamflooding, employed alternately in the LaBarge Field, are used to increase the recoverable reserves over that which could be expected in a conventional waterflood. As additional oil reserves become more difficult to locate in the future, the increased use of enhanced recovery techniques in the resource area is inevitable. Every oil reservoir would eventually be considered a candidate for secondary recovery.

Plugging and Abandonment of Wells

The purpose of plugging and abandoning (P&A) a well is to prevent fluid migration between zones, to protect minerals from damage, and to restore the surface area. Each well has to be handled individually due to a combination of factors, including geology, well design limitations, and specific rehabilitation concerns. Therefore, only minimum requirements can be established, then modified for the individual well.

The first step in the P&A process is the filing of the Notice of Intent to Abandon (NIA). This will be reviewed by both the Surface Management Agency (SMA) and the BLM District Office. The NIA must be filed and approved prior to plugging a past producer. Verbal plugging instructions can be given for plugging current drilling operations, but a NIA must be filed after the work is completed. If usable fresh water was encountered while the well was being drilled, the SMA will be allowed, if interested, to assume future responsibility for the well and the operator will be reimbursed for the attendant costs.

The operator's plan for securing the hole is reviewed. The minimum requirements are as follows: In open hole situations, cement plugs must extend at least 50 feet above and below zones with fluid which has the potential to migrate, zones of lost circulation (this type of zone may require an alternate method to isolate), and zones of potentially valuable minerals. Thick zones may be isolated using 100-foot plugs across the top and bottom of the zone. In the absence of productive zones and minerals, long sections of open hole may be plugged with 150-foot plugs placed every 2,500 feet. In cased holes, cement plugs must be placed opposite perforations and extending 50 feet above and below except where limited by plug back depth.

A permanent abandonment marker is required on all wells unless otherwise requested by the SMA. This marker pipe is usually at least 4 inches in diameter, 10 feet long, 4 feet above the ground, and embedded in cement. The pipe must be capped with the well identity and location permanently inscribed.

The SMA is responsible for establishing and approving methods for surface rehabilitation and determining when this rehabilitation has been satisfactorily accomplished. At this point, a Subsequent Report of Abandonment can be approved.

SUBSURFACE PRACTICES

The success (or failure) of subsurface operations cannot be determined by simply "looking down the hole," but instead, must be judged from indirect evidence such as downhole logs, drilling data, completion data, and many other data sets. Competent professionals are required to determine the character and adequacy of "downhole" operations. A downhole failure may take many years before the ramifications become apparent at the surface; by that time, the situation may be irreversible.

Prior to 1982, the USGS was responsible for subsurface management and initiated many standards and policies for oil and gas development on federal mineral lands. Since 1982, the fluid minerals branch of the BLM has been responsible for subsurface management.

Casing and Cementing

Early wells had just enough casing to support a wellhead and the remainder of the hole was generally open. Improper casing and cementing allows communication between zones of hydrocarbons, salt water, and fresh water. Most standards are difficult to set in that cost is a factor and any job can be "overdesigned." Many "gray areas" exist where experts argue the merits of one design over another. One of these controversial design areas is hole size relative to casing size. It is questionable if a proper cement bond can be obtained under these circumstances. Hole deviation, depth, bore hole environment, placement of centralizers (if any), and a myriad of other factors affect the integrity of the casing and cement job. One of the most important factors influencing a "cement job" is the pumping method. Cement can be pumped and placed in any of three flow regimes: plug flow, laminar flow, and turbulent flow. The flow regime is a function of the velocity at which the slurry flows. Plug flow has a very slow velocity and takes the most time to pump. Turbulent flow requires high hydraulic horsepower and some service companies cannot pump cement in turbulent flow under certain conditions.

Blowout Prevention

In the early days of drilling, no blowout prevention equipment was used. As a result, several spectacular blowouts occurred in the southwest portion of the resource area near LaBarge.

Today special attention is paid to blowout prevention and much of the equipment associated with drilling rigs is for handling excess pressure at the surface. Blowout prevention equipment is tested and inspected regularly by both the rig personnel and the inspection and enforcement branch of the BLM. Reasonably good standards are currently in effect and operators are willing to follow them due to the dangerous nature of an uncontrolled flow from the well. The BLM is currently attempting to upgrade standards for blowout preventer stack tests to require full working pressure tests instead of the lower pressures currently specific in CDM 643.8.3C-8. Well trained rig site personnel are a necessity for proper blowout prevention.

Casing setting depth is also important with regards to blowout prevention. The casing shoe must be set in rock which is competent to withstand the maximum anticipated pressure to which it will be exposed.

APPENDIX C-4

CRITERIA FOR DETERMINING DEPTH OF FRESH WATER AND SURFACE CASING REQUIREMENTS

When processing an Application for Permit to Drill (APD), the geologic section is required to identify the maximum depth of usable water as defined in 43 CFR 3162.5-2. Usable water is defined as that water containing 5,000 milligrams per liter (mg/l) or less total dissolved solids. Water of this quality is to be protected, usually by surface casing and cement.

Determining the depth to fresh water requires specific water quality data in the proposed well vicinity or geophysical log determination of water quality (by the resistivity method), depending on existing well proximity and log availability. If water quality data or logs from nearby wells are not available, the area within a two-mile radius of the proposed well is checked for water wells. If wells exist, surface casing is required to be set 200 feet below the deepest fresh water zone found in these wells. If none of the above information is available, surface casing is required to 10 percent of the proposed well's total depth.

APPENDIX C-5

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS

APPENDIX C-5

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS

Green River Basin and Thrust Belt

Era	Period	Geologic Unit	Thickness (feet)	Lithologic Description	Hydrologic Properties
Cenozoic	Quaternary	Alluvium	Less than 100 feet thick in Green River basin; up to 410 feet thick in Bear River Valley of Overthrust Belt.	Unconsolidated sand, gravel, silt, and clay.	Highly permeable, productive water-bearing deposits. Well yields commonly 50 to 500 gpm. Transmissivity generally 5,000 to 30,000 gpd/ft. Total dissolved solids are generally less than 500 mg/l.
	Tertiary	Camp Davis	0-6,000	Conglomerate, limestone, sandstone and tuffaceous mudstone.	Poorly consolidated conglomerates are well drained. Yields generally range from 10 to 120 gpm.
		Bridger Formation	0-2,300	Tuffaceous lacustrine and flood plain deposits, becoming locally conglomeratic near the Uinta Mountains.	A major aquifer in the southern Green River basin-Overthrust area. Yields from wells and springs commonly range from 2 to 100 gpm. Transmissivities are commonly between 500 and 3,000 gpd/ft.
		Green River Formation	100-2,800	Lacustrine claystone, marlstone, oil shale and saline deposits with discontinuous lenses of fine-grained sandstone in the Laney and Tipton shale members of the upper and lower Green River Formation, respectively.	A major aquifer in eastern Green River basin. Sandstone lenses in Laney Shale and Tipton Shale members generally yield 3 to 100 gpm to wells and springs. Transmissivities range from 1,000 to 6,500 gpd/ft. Vertical permeability is very low due to great thickness of tight marlstone and shale above and below sands. Total dissolved solids concentrations in Laney Shale usually exceed 1,500 mg/l. Wilkins Peak TDS levels are typically 10,000 to 100,000 mg/l.

APPENDIX C-5 (Continued)

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS

Green River Basin and Thrust Belt

Era	Period	Geologic Unit	Thickness (feet)	Lithologic Description	Hydrologic Properties
Cenozic (continued)	Tertiary (continued)	Wasatch Formation	2,500 to 7,200	Silty to sandy claystone, lenticular beds of fine- to medium-grained sandstone becoming conglomeratic to the south and west.	Major aquifer of Green River basin. Well yields range from 1 to 1,300 gpm, though commonly less than 50 gpm. Transmissivity generally ranges from 200 to 1,000 gpd/ft. Oil field pay zone porosity and permeability range from 20 to 25 percent and 0.02 to 18 gpd/ft2, respectively. Total dissolved solids concentrations between 300 and 1,000 mg/l may be expected.
		Fort Union Formation	0-6,000	Fine- to medium-grained, silty sandstone and lignitic mudstone with coal; becomes coarser grained near mountainous areas. Major coal seams occur in the lower Fort Union.	Locally utilized aquifer of Green River basin and southern Overthrust belt. Oil and gas field data indicate pay zone porosites of 9 to 23 percent and sandstone permeability of less than 0.01 to 0.5 gpd/ft2.
Mesozoic	Upper Cretaceous	Lance Formation	0-50?	Very fine to fine-grained, lenticular, clayey, calcareous dark shale, coal and lignite.	No water well data for Lance Formation. The unit is probably capable of yielding small quantities of water from fine-grained sands and conglomeratic sandstone at base (Fox Hills Sandstone). Oil field pay zone porosity is 12 to 18 percent.

APPENDIX C-5 (Continued)

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS

Green River Basin and Thrust Belt

Era	Period	Geologic Unit	Thickness (feet)	Lithologic Description	Hydrologic Properties
Mesozoic (continued)	Upper Cretaceous (continued)	Lewis Shale	200-2,000	Calcareous to noncarbonaceous shale with beds of siltstone and very fine-grained sandstone.	Unit is an aquitard where present in the eastern Green River basin and Rock Springs uplift. Well data are not available.
		Mesaverde Group	1,300-5,200	Tightly cemented, very fine to fine-grained sandstone and siltstone interbedded with gray shale and a few thin coal seams in the western Green River basin. Near the Rock Springs uplift the Mesaverde Group consists of interbedded fine-grained to conglomeratic sandstone, siltstone, shale, and coal.	Unit is utilized locally, particularly near Rock Springs uplift, for stock and domestic supplies. Sandstones of Ericson Formation (middle to upper Mesaverde Group) are highly permeable and capable of large yields to wells and springs. Reported oil field pay zone porosities range from 9.5 to 24 percent. Permeability estimates are less than 0.01 to 1.1 gpd/ft^2. Reported yields from Mesaverde wells east of the basin boundary, on the Rock Springs uplift, are 100 to 200 gpm.
		Adaville Formation	1,400-5,000	Fine- to medium-grained calcareous sandstone and carbonaceous mudstone with numerous coal beds. Present in Overthrust belt.	Generally considered a minor aquifer of the Overthrust belt area, though no well data or spring yield records exist for the unit.
		Hilliard Shale Baxter Shale	3,000-6,800?	Sandy shale with interbedded mudstone and shaley sandstone.	Major regional confining unit of Green River basin and Overthrust belt. Locally yields small quantities to wells from sand lenses. Oil field pay zone porosity is 10 to 21 percent.

APPENDIX C-5 (Continued)

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS

Green River Basin and Thrust Belt

Era	Period	Geologic Unit	Thickness (feet)	Lithologic Description	Hydrologic Properties
Mesozoic (continued)	Lower Cretaceous (continued)	Frontier Formation	1,100-3,000?	Lenticular sandstone, fine- to medium-grained; interbedded mudstone, claystone, siltstone, minor coal; prolific gas and occasional oil producer.	Aquifer yields 5 to 50 gpm to springs. Porosity of oil field pay zones is 8 to 25 percent; transmissivities from drill stem tests generally less than 10 gpd/ft. Variable cementation and lenticularity of beds causes irregular occurrence of high transmissivity zones.
	Lower Cretaceous	Aspen Shale	400-2,200	Shale; interbedded fine-grained sandstone and siltstone.	Locally utilized aquifer, maximum spring and well yields 25 to 30 gpm. Oil field pay zone porosity of 15 percent in "fractures." Water yields are mainly from stray sands and fracture zones.
		Bear River Formation	800-1,500	Fissile shale with sandstone interbeds in Overthrust belt, fine shaley sandstone with shale and siltstone interbeds ("Muddy" sandstone upper) and shale with sandstone, siltstone and bentonite interbeds (Thermopolis Shale-middle, and "Dakota" sandstone-lower) in Great Divide and Washakie basins just east of Rock Springs uplift.	Minor aquifer with spring yields generally 4 to 15 gpm and similar well yields. Oil field pay zone porosity is 8 to 21 percent. Pump test transmissivities are 300; 2,300; 9,500 gpd/ft. (specific capacities 0.3, 2.3, and 7.8 gpm/ft.), calculated drill stem test transmissivity generally less than 45 gpd/ft. Porosity and permeability are highest in the "Muddy" and "Dakota" members.

APPENDIX C-5 (Continued)

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS

Green River Basin and Thrust Belt

Era	Period	Geologic Unit	Thickness (feet)	Lithologic Description	Hydrologic Properties
Mesozoic (continued)	Lower Cretaceous (continued)	Gannett Group (Overthrust Belt)	800-5,000	Interbedded siltstone, calcareous siltstone, calystone, mudstone, sandstone, conglomerate, limestone. Lower conglomerate unit (Lakota).	Water-bearing units restricted to sandstones and conglomerate in lower part. Lakota porosity ranges from 18 to 21 percent with one transmissivity estimate of 160 gpd/ft. for the Bechler Member. Springs in Lakota and Bechler conglomerate members flow 5 to 75 gpm.
	Upper Jurassic	Stump Sandstone-Preuss Redbeds (Overthrust belt and NW Green River basin) Curtis Formation-Entrada Sandstone (SE Green River basin)	270-460	Interbedded sandstone, siltstone, mudstone and limestone.	Unit is considered a poor aquifer with one well yield of 5 gpm and spring flows of 20 and 50 gpm. Transmissivities estimated from 3 drill stem tests are less than 12 gpd/ft.
	Middle Jurassic	Twin Creek Limestone	800-3,800	Upper limestone and shale Lower limestone, mainly brecciated, but partly honeycombed, and claystone.	Minor aquifer in Overthrust belt. Spring flows range from 20 to 300 gpm. Transmissivity estimates range from less than 1 to 16 gpd/ft. Permeability is generally less than 0.002 gpd/ft^2 and porosity from one oil field pay zone is 1.7 percent.
	Lower Jurassic	Nugget Sandstone	750-1,300	Sandstone, fine- to medium-grained, well-sorted, quartzitic, cross-bedded minor clay and silt in upper part, significant clay and silt in lower part; locally highly calcareous; prolific oil and gas producer.	Major aquifer of Mesozoic system. Springs flow 3 to 300 gpm with four flows of 1,400 to 2,000 gpm. Well yields not available. Transmissivity estimates range from 9 to 37 gpd/ft in the Green

APPENDIX C-5 (Continued)

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS
Green River Basin and Thrust Belt

Era	Period	Geologic Unit	Thickness (feet)	Lithologic Description	Hydrologic Properties
Mesozoic (continued)	Lower Jurassic (continued)				River basin and 1.9 to 186 gpd/ft in the Overthrust belt. Oil and gas field pay zone porosities range from 10 to 20 percent. Permeability is 0.2 to 3 gpd/ft^2, highest in the upper part of the aquifer.
	Triassic	Ankareh Formation	200-800	Shale, interbedded siltstone, fine-grained sandstone, and, locally, limestone in the middle part.	Minor regional aquifer, locally confining. One spring flows 200 gpm. No current well production. Transmissivity from one drill stem test is 0.5 gpd/ft.
		Thaynes Limestone	1,100-2,600	Silty limestone, with siltstone and shale in the upper part.	Generally considered a regional aquifer with spring flows of 5 to 1,800 gpm (4 less than 100 gpm) and one well flowing 150 gpm. Oil field pay zone porosity at one field is less than 5 percent. Transmissivity estimates from 3 oil field drill stem tests are 0.3 to 38 gpd/ft. The unit is most productive where solution openings, bedding plane partings, and fractures exist.
		Woodside Formation	350-600	Anhydritic siltstone and mudstone with some fine-grained sandstone.	Unit acts as regional aquitard. Well and spring data not available.
		Dinwoody Formation	250-700	Siltstone and shale, dolomite and interbedded anhydrite in upper part.	Regional aquitard with local productive zones. One spring flows 150 gpm. Transmissivity estimate from one drill stem test is 8.8 gpd/ft.

APPENDIX C-5 (Continued)

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS

Green River Basin and Thrust Belt

Era	Period	Geologic Unit	Thickness (feet)	Lithologic Description	Hydrologic Properties
Paleozoic	Permian	Phosphoria Formation	200-400	Phosphatic carbonate, cherty shale and sandstone in N. Overthrust belt and in NW Green River basin. Nonphosphatic carbonate with subordinate sandstone in S. Overthrust belt and SE Green River basin. in the upper part of the formation.	Unit is minor aquifer, locally confining. One well and one spring yield 200 and 300 gpm, respectively. Transmissivity estimates typically less than 13 gpd/ft. Most productive from fracture zones and interbedded sandstones
	Mississippian-Pennsylvanian	Amsden Formation (Overthrust belt and NW Green River basin) Darwin Sandstone Member (Green River basin)	400-700	Mudstone, siltstone and sandstone, with cherty limestone.	Minor aquifer in Green River basin, but locally confining in Overthrust belt and NW Green River basin. One Amsden well yields 8 gpm. Oil field pay zone porosity at 3 fields is 7 to 12 percent. Transmissivity estimates from 4 drill stem tests are less than 1 to 4.8 gpd/ft. Permeability is less than 0.02 gpd/ft^2 (one estimate).
		Madison Limestone	800-2,000	Limestone, thin-bedded to massive, brecciated and partly cherty, and dolomite, thick-bedded to massive. Excellent karst and fracture development throughout the area.	Major regional aquifer in study area and entire state of Wyoming. Excellent solution and fracture permeability. Maximum well yield of 720 gpm, though most yields are less than 100 gpm. Four springs flow less than 350 gpm, two others flow 4,000 and 40,000 gpm. Transmissivity is typically less than 15,000 gpd/ft. Specific capacity generally 0.1 to 10 gpm/ft.

APPENDIX C-5 (Continued)

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS

Green River Basin and Thrust Belt

Era	Period	Geologic Unit	Thickness (feet)	Lithologic Description	Hydrologic Properties
Paleozoic (continued)	Devonian-Mississippian	Darby Formation	400-1,000	Limestone and dolomite, thin-bedded to massive, and siltstone; shale and sandstone predominate in northern Overthrust belt.	Major aquifer with permeability dependent upon degree of fracturing and secondary solution, best developed in Overthrust belt. Four Darby springs flow 5 to 1,100 gpm. One well yields more than 5 gpm.
	Ordovician	Bighorn Dolomite	400-1,000	Fine- to medium-grained massive dolomite and dolomite limestone.	Highly productive aquifer where fracture, secondary solution and bedding plane permeability are well developed. Three Bighorn springs flow 250 to 450 gpm, one flows 3,200 gpm. Porosity from one oil field is 2 percent. Well data are not available.
	Cambrian	Gallatin Limestone	125-1,000	Limestone, thin-bedded and dolomite limestone with minor interbedded conglomerate and thin shale partings.	Well and spring data not available; however, lithology as well as fracture and secondary solution permeability development are indicative of a potentially productive aquifer.
		Gros Ventre Formation	500-2,500	Shale and interbedded conglomerate in the upper part, underlain by limestone and a lower hematitic shale unit.	Unit is generally considered a regional aquitard with low vertical permeability due to upper and lower shales. Well data are not available. One spring flows 900 gpm (?).

APPENDIX C-5 (Continued)

GENERALIZED HYDROLOGIC CHARACTERISTICS OF GEOLOGIC FORMATIONS

Green River Basin and Thrust Belt

Era	Period	Geologic Unit	Thickness (feet)	Lithologic Description	Hydrologic Properties
Paleozoic (continued)	Cambrian (continued)	Flathead Sandstone	175-200	Quartzite, fine-grained, with coarse-grained sandstone lenses. Minor silty shale beds occur in upper part with some conglomerate in the lower part.	Well and spring data are not available for the unit. Lithology is similar to basal Cambrian in other basins of western Wyoming where Flathead equivalents are highly permeable, productive aquifers.
Precambrian	undivided	Precambrian undivided	?	Gneissic granite with schist, granite and pegmatite.	Locally utilized aquifer near outcrop areas on west side of Wind River and Gros Ventre ranges and east side of Teton Range, where highly weathered permeable zones overlie well fractured bedrock. Optimum productive zones are probably less than 200 feet deep. Well and spring data not available.

Source: Ahern, J.; M. Collentine; and S. Cooke 1981. *Occurrence and Characteristics of Ground Water in the Green River Basin and Overthrust Belt, Wyoming*. Water Resources Research Institute, University of Wyoming. Cheyenne, Wyoming.

Note: "?" Indicates either an approximate measure or unknown data.

APPENDIX D-1

ALLOTMENT CATEGORIZATION

SELECTIVE MANAGEMENT CRITERIA BY CATEGORY

Maintenance Category (M)

Present range condition is satisfactory.

Allotments have moderate or high resource production potential and are producing near their potential (or trend is moving in that direction).

Present management is considered satisfactory.

Riparian areas are under satisfactory management and are not in a declining trend.

No serious conflicts exist with regard to current uses of resource.

Potential may exist for positive economic returns on public investments.

Improve Category (I)

Present range condition is unsatisfactory or in a declining trend.

Allotments have moderate to high resource production potential but are producing at low to moderate levels.

Present management is considered unsatisfactory.

Riparian areas are presently in a declining trend and management is unsatisfactory.

Serious resource use conflicts may exist and controversy is at a high level.

Potential for high return on public investment exists.

Custodial Category (C)

Present range condition is variable.

Allotments have relatively low resource production potential and are presently producing at or near their potential.

Present management appears satisfactory or is the only logical practice under existing resource conditions.

Riparian areas are either not present, or are not in a declining condition.

Limited resource conflicts and/or controversy presently exist.

Potential for returns on public investment is low.

SELECTIVE MANAGEMENT CRITERIA BY SITUATION

Range Condition

A professional judgment criteria used when there is a lack of ecological range site data. A subjective rating of what the area is now producing as compared to its potential.

Resource Potential

A professional judgment criteria used to determine the allotment's potential (capability) to improve. This criteria is based on the potential that exists for increased forage production, either naturally or artificially.

High Potential - I
Moderate Potential - M
Low Potential - C or M

Present Management Situation

A rating of allotments based on present range management practices.

Allotment is receiving satisfactory management - M or C
Allotment is receiving unsatisfactory management - I

Riparian Areas

A judgment of whether or not riparian vegetation is declining, static, or in an upward trend.

Declining trend - I
Static or upward trend - M or C

Resource Use Conflicts and/or Controversy

Critical wildlife habitat areas, Wilderness Study Areas, ACECs, mining or oil and gas and other conflicts that may exist.

Low level of conflict/controversy - M or C
High level of conflict/controversy - I

Economic Investment Potential

The potential for a positive economic return on investments.

High - I
May exist - M
Low - C

Ranking of Allotments in the Improve Category

The allotments in the improve category were ranked to represent the allotments with the most problems/conflicts which would be addressed first (Appendix D-5). The 40 allotments were set in a priority by using a weighted value set to the various criteria. The following is the rating system developed.

Range Condition:
Satisfactory = 0,
Unsatisfactory = 2,
Undetermined = 0.

Allotment Potential:
High = 2,
Medium = 1,
Low = 0.

Present Productivity:
High = 0,
Medium = 1,
Low = 2.

Resource Conflict:
Many = 2,
Few = 1,
None = 0.

Controversy:
High = 2,
Low = 1,
None = 0.

Present Management:
Satisfactory = 0,
Unsatisfactory = 2.

Willingness to Invest:
Yes = 2,
Maybe = 1,
No = 0.

The criteria were totaled to establish the order in which the allotments would be addressed.

APPENDIX D-2

RANGELAND MONITORING PLAN FOR THE PINEDALE RESOURCE AREA

INTRODUCTION

The rangeland monitoring program is a multidisciplinary approach designed to measure progress towards the realization of the goals and objectives resulting from the land use planning process. This monitoring plan was prepared to provide for the implementation of the rangeland monitoring program in the Pinedale Resource Area. This plan will discuss when, where, and how studies will be implemented, as well as the types of data being collected, how the data will be evaluated, and who will participate in the process.

ALLOTMENT CATEGORIZATION

The selective management process was developed to assist the Bureau in setting priorities for its management efforts. Through selective management, each allotment is placed in one of three categories (I, M, or C), depending on the applicable categorization criteria. Once categorized, the allotments are ranked in order of priority for a given level of management. Allotments for the resource area are listed by category in Appendix D-5. Monitoring studies would be installed on all "I" allotments and on "M" and "C" category allotments as needed. Monitoring intensity would be greater on "I" allotments than on "M" or "C" allotments.

OBJECTIVES

For "I" Allotments (high intensity)

1. Identify grazing distribution problems and use patterns on each allotment prior to installation of trend studies.
2. Stratify each allotment to the level necessary to identify key management areas prior to installation of trend studies. Riparian areas and wet meadows will be considered in this process.
3. Identify areas of significant competition for forage and resolve these conflicts by adjusting stocking rates or seasons of use of competing species.
4. Identify key management species for each key area.
5. Determine range condition initially and trend starting five years from installation of trend studies on each allotment.
6. Provide management and monitoring intensity appropriate to improve range condition.
7. Determine current utilization levels in each allotment.
8. Determine actual use by livestock on each allotment.
9. Identify annual climatic patterns, which include precipitation. Soil temperature, soil moisture, and air temperature information will be obtained in selected key areas.

For "M" and "C" Allotments (low intensity; selected elements from the following list will be used)

1. Identify grazing distribution problems and use patterns, where necessary.
2. Identify areas of significant competition for forage and monitor only crucial habitats.
3. Stratify each allotment only to a level necessary to identify key management areas.
4. Identify key management species for each key area.
5. Establish low intensity trend studies on only the most representative areas. Determine range site and range condition following development.

6. Provide appropriate management and monitoring intensity in order to maintain current range condition.
7. Determine current utilization levels in each allotment.
8. Determine actual use by livestock.
9. Identify general climatic patterns.

MONITORING STUDIES METHODOLOGY

Climate

Climatic data, along with actual use data, are used as a tool to help understand annual utilization and long-term trend patterns. There are 20 existing precipitation gauges (including a cooperative study with the University of Wyoming) on the Pinedale Resource Area. In addition, precipitation data from the National Climate Data Center and University of Wyoming Water Research Institute may be utilized.

Temperature data will also be used to assist in interpreting climatic effects on monitoring data. Temperature data will be obtained from National Climatic Data Center reports from sites at Big Piney, Cora, Merna, and Pinedale, Wyoming.

In addition to the prescription and temperature studies described above, soil moisture/temperature probes will be installed on selected key areas in "I" allotments where conflicts are sufficient to warrant this level of data.

Actual Use

Actual use is the grazing use made on an area by all classes of forage consumers. This information is necessary to provide a correlation between utilization and trend data. Considered alone, actual use data is essentially meaningless. When considered in conjunction with climate and utilization, short term adjustments in grazing capacity can be made. Long-term adjustments can be made with the addition of trend data.

Actual use data for livestock will be obtained from permittees/lessees by Certified Actual Use Reports annually or at the end of specified grazing periods. This requirement will be stipulated as a condition of the permit/lease for all "I" allotments. In addition, unannounced field counts will be made each year on "I" allotments as time and money allow. Paint branding and ear tagging will also be used on "I" allotments where the potential for unauthorized use is greatest.

Utilization

Utilization is defined as the percent of the current year's growth consumed by animals during a given grazing period. These data are used in conjunction with actual use, climate, and trend data to make either short or long term stocking adjustments. This is done by comparing measured utilization rates with proper or allowable rates for a particular key species. Utilization techniques will also be used to assist in use pattern mapping. Several methods for obtaining utilization data (available for review in the resource area office) will be employed, including:

Key Forage Plant Method for use pattern mapping.

Ocular Estimate by Plot Method for key areas.

Height-Weight Curves for key areas on selected "I" allotments.

Paired Plot Method for riparian areas.

Cole Browse Transect for wildlife or wildlife/livestock areas.

These data will be collected following the removal of livestock from a pasture or at the end of a grazing period for livestock or wildlife. The intensity with which these techniques will be applied will be highest in the "I" allotments. The "M" and "C" allotments will be monitored only to a level sufficient to identify changes in current range condition.

Trend

Trend is defined as the change in range condition over time. Trend data will indicate the direction of change in the general health of the range resource. These data will be used in conjunction with other monitoring data to assist in making long term adjustments in grazing use.

Trend studies on "I" allotments will be of high intensity. These studies will include the installation of permanent plot transects on each key area. Existing 3-foot by 3-foot trend plots will be replaced with this method where they fall into the key area being monitored. However, these existing plots will continue to be photographed on the same sequence that the trend plot transects are being read.

Trend studies on "M" and "C" allotments will be of low intensity. Trend plots will be installed only on selected key areas to monitor for specific resource issues. To assist in this effort, an ocular estimate of species composition by weight will be used to establish a baseline for range condition in areas lacking soil survey data. This method will also be used as a check for future changes in range condition on these sites.

Trend studies will normally be read on a three to five year sequence, depending on the level of data required for each key area.

Key Area Selection

Key areas will be selected first on "I" allotments in approximately the same order as listed in Appendix D-5. Selection of key areas on "M" and "C" allotments may be integrated with the process for "I" allotments but no actions will occur on them at the expense of time that should be spent on higher priority allotments.

Some of the criteria to be considered in the selection of key areas include: range sites, vegetation types, use patterns, range improvements, kind and class of animal, wildlife crucial areas, and the physical feature of the allotment.

Schedules and Personnel Requirements for Establishment and Reading of Studies

This monitoring plan was prepared with the assumption that funding will remain at, or near, existing levels for the foreseeable future. In this light, it is anticipated that the bulk of the monitoring load will have to be borne by the existing range staff.

The scheduling for implementation of this monitoring plan is dependent, in part, on the continued funding of the range site inventory. The range site inventory is completed on approximately half the resource area and the remainder of the area does not have a soils inventory nor a range site inventory. The initial thrust of the monitoring program will be towards completion of the high "I" allotments. Low priority "I" as well as the "M" and "C" allotments will be addressed as completely as funding levels allow.

COORDINATION AND CONSULTATION

The rangeland monitoring program for the resource area is a multiple use effort whereby all affected interests will be given an opportunity to participate. Prior to implementation of this plan, any affected groups or individuals will be notified by mail of our intent and be furnished with a schedule covering the first group of allotments. Follow-up consultations will be made to those groups or individuals who expressed an interest in a given allotment to advise them of the time and place to meet for an initial field examination. This process will carry through all aspects of the monitoring program for each allotment.

EVALUATION/ADJUSTMENT

Analysis and evaluation of monitoring data will be an ongoing process directed towards discerning ching climatic, actual use, and utilization data to assist in interpretation of trend readings. Annual evaluation of ting climatic, actual use, and utilization data to assist in interpretation of trend readings. Annual evaluation of the climatic, actual use, and utilization data would be done to check stocking levels.

Allotments will be evaluated on a predetermined schedule such as the end of a grazing cycle on allotments with AMPs or following one reading of all the trend studies on an allotment without AMPs. This process will be coordinated with all affected interests.

The results of these allotment evaluations will be used as a basis for making short or long term adjustments in livestock operations. Short-term operational adjustments may be made immediately if the problem can be resolved through livestock management (herding, salting, etc.). Short term adjustments in stocking rates, seasons of use, or changes in kind of livestock will normally require two years of utilization, actual use, and climatic data. Long term adjustments in stocking rates, seasons of use, etc., will result from the interpretation of trend studies over two or more cycles of trend readings in an allotment.

If the monitoring data indicate that certain allotment objectives are not being met, the appropriate adjustments in the grazing operation will be made. These adjustments may range from the manipulation of livestock to changing stocking numbers or seasons of use. The level of adjustment will be determined by the degree of divergence from the objective.

ALLOTMENT MONITORING PLANS

Allotment monitoring plans will be prepared for all "I" allotments prior to initiation of the monitoring program. On allotments with AMPs, this will be included as a portion of the AMP. On allotments without AMPs, this plan will be included in the allotment file. The allotment monitoring plan will include, as a minimum, the following sections: public involvement and interdisciplinary approach; allotment issues; allotment objectives; intensity and type of studies; and the schedule for conducting, analyzing, and evaluating monitoring data.

Public Involvement and Interdisciplinary Approach

This section will document Bureau efforts to solicit public involvement as well as provide a record of all meetings and correspondence concerning the plan. This section will also document the participants in all stages of the monitoring process.

Allotment Issues

This section will identify specific issues to be resolved by the management program prescribed for the allotment. The monitoring plan will provide the vehicle for measuring progress towards resolution of the issues. A discussion of the selective management category and accompanying justification will also be included.

Allotment Objectives

This section will contain a clear, concise list of measurable allotment management and key area objectives to be monitored by the studies program. Locations for each key area will be shown (and mapped) and key species will be identified.

Intensity and Type of Studies

This section will discuss the nature of the studies required to measure progress towards the allotment and key area objectives identified above. A discussion of any special physical or management features for the allotment will also be included.

Schedule for Conducting, Analyzing, and Evaluating Monitoring Data

This section will show, by key area, the schedule for collecting data for each monitoring technique. It will also provide a schedule for periodic analysis of data to determine if objectives are being met. This section will also show the anticipated date for the evaluation of the allotment to determine if any stocking adjustments are necessary. If objectives are not being met, a discussion of management alternatives (short and long term) will also be included.

A modified version of this format may be used to document the monitoring effort on "M" and "C" allotments. This plan will be retained in the studies section of the allotment file.

APPENDIX D-3

STANDARD OPERATING PROCEDURES FOR RANGE IMPROVEMENTS AND VEGETATION MANIPULATIONS

The operating procedures listed in this appendix will be standard for all range improvements and vegetation manipulations.

Consultation with the affected interest groups and an approved environmental analysis would be required for all range improvements before any project is initiated.

Roads or trails to new construction or project sites would be constructed only if access does not exist.

Proposed range improvements, resulting in surface disturbance, would be inventoried for archeological features. All archeological sites identified would be avoided or mitigated.

If undiscovered cultural remains are encountered during construction, the operator would temporarily discontinue until BLM evaluates the discovery and determines the appropriate action.

No action would be taken by BLM that could jeopardize the continued existence of any federally listed threatened or endangered plant or animal species.

BLM would also comply with any state laws applying to animal or plant species identified by the state as being threatened or endangered (in addition to the federally listed species).

Wildlife escape devices would be installed and maintained in all water troughs.

After construction, any disturbed areas would be revegetated.

An analysis of cost effectiveness would be completed on an allotment basis prior to the installation of any management facilities or land treatments.

All areas where vegetation manipulation occurs would be totally rested from livestock grazing for a period necessary to allow for the recovery and re-establishment of key forage species.

Chemical treatment would consist of applying approved chemicals to control noxious or poisonous plants. Before chemicals area applied, the BLM would comply with the Department of Interior regulations. All chemical applications would be preceded by an approved pesticide use proposal. All applications would be carried out in compliance with the pesticide laws for Wyoming.

All land treatment projects on crucial wildlife ranges will be limited in size, where necessary, by the cover and(or) forage requirements of wildlife. Proper mitigation measures would be incorporated.

All burning projects will have a burn plan, environmental assessment, and a burn permit from the State of Wyoming's Department of Environmental Quality prior to initiation.

APPENDIX D-4

DESIGN OF RANGE IMPROVEMENTS

All range improvements will be designed and constructed in such a manner so as to minimize environmental impacts while maximizing function and cost effectiveness. Prior to the installation of any of the range improvements shown in Appendix D-5, an environmental assessment (EA) will be prepared analyzing the alternatives for the project. In addition, a benefit/cost analysis (B/C) of the various alternatives will be completed to determine the most cost effective method for the allotment. The following discussion will describe the general design features of the range improvements described in Appendix D-5.

BRUSH CONTROL

Brush control refers to the removal of a shrub or tree overstory to release the grass and forb understory from the effects of competition for soil nutrients and water. The techniques involved in brush control generally fall into one of three categories: burning, chemical, or mechanical.

Burning involves the use of fire under prescribed conditions to change the character of the vegetative community. This technique takes advantage of the relative fire tolerance between plant species. Prescribed burning is most useful in removing a dominant fire sensitive overstory species, such as big sagebrush, thereby opening up the community to the natural response of fire tolerant grasses, forbs and shrubs. Prescribed fire can also be useful in preparing a seedbed for artificial reseeding. The main disadvantage to prescribed burning is its harsh initial impact on the site. Initially, ground cover is greatly reduced, erosion potential is increased, wildlife habitat is reduced and forage production is decreased. Reestablishment of vegetation on the site can be quite slow but usually results in increased productivity, palatability and species diversity while erosion potential is decreased over pretreatment levels. The cost of prescribed burning is low compared to other techniques. Burning without reseeding can be accomplished for less than five dollars per acre as of this writing.

Chemical treatments involve the use of ground or aerially applied herbicides to target species to reduce their competitive effect on more desirable species. Many classes of herbicides exist and they all vary in action, selectivity, and persistence. However, for brush removal on public lands relatively few compounds are approved for use. These compounds are usually selective for broadleaf vegetation and leave only grasses and tolerant forb and shrub species after treatment. If, for instance, the target species is sagebrush, few species other than grasses will exist immediately following application. However, by the next growing season the seed source for other species will begin to express itself as a result of reduced overstory competition. Generally by the end of the first complete growing season increased understory productivity and species diversity are evident. Chemical treatments have less total impact on the site than burning or mechanical treatments but are usually more expensive than burning. In addition, the seedbed resulting from a chemical treatment is usually not as suitable for reseeding due to the amount of standing litter.

Mechanical treatments involve the use of agricultural equipment to simply remove the overstory or to consume the entire community and leave a suitable seedbed. Techniques and implements are highly variable but all share the disadvantage of high cost.

All of the above brush control techniques can be used to prepare a seedbed suitable for artificial reseeding. Where needed, reseeding is a viable technique to establish a more desirable plant community. However, seed and application costs can be high and are sometimes difficult to prove cost effective. Wherever possible, techniques used and sites chosen on the Pinedale Resource Area will be those that lend themselves to natural regeneration.

Vegetation manipulation (controlled burning, mechanical treatment, artificial seeding, etc.) will generally be designed in irregular patterns creating more "edges," with islands of vegetation left intact for cover, with the exception of drainages where active channel incision is occurring or in areas where saline or sodic soils are present. Manipulation proposals are handled on a case-by-case basis. In some cases, manipulation would be followed with animal control to ensure reestablishment of vegetation.

RESERVOIRS

Reservoirs are constructed by heavy earthmoving equipment by that is used to build dikes across drainages. The impoundments created are designed to catch temporary runoff or permanent streamflow to provide a more reliable source of water for livestock and wildlife. Design requirements are determined mainly by the nature and amount of source water. Upstream fencing is sometimes desirable to provide riparian habitat and reduce the silt load entering the reservoir.

Water will be provided for wildlife in appropriate habitat areas (spring/summer/fall habitat areas). Whenever possible, water will be provided in allotments (including rested pastures) during seasonal periods of need for wildlife.

WELLS

Wells are usually drilled in areas where other water sources are unavailable to provide a reliable water source for livestock and wildlife. Drinking troughs will be installed near the well and will be modified to serve young and mature animals as well as small game and birds. Well sites will be selected based on geologic well site investigations.

SPRINGS

Spring sources are usually developed with a backhoe or other implement designed to expose the aquifer. Source points are gathered into a central point or head box through a perforated pipe and diverted into a pipeline or drinking trough. The spring source will be fenced for protection and to provide riparian habitat. A wildlife drinking trough may be located within the enclosure. The livestock trough will be located outside the enclosure and will also be modified for use by wildlife.

PIPELINES

Pipelines consist of plastic, usually polyethylene, pipe buried by mechanical pipe laying implements to a depth necessary to maximize the life and efficiency of the pipe material. Pipelines originate at spring sources or wells and are used to distribute water to unserviced areas. Drinking troughs are situated along the pipeline, usually no more than one mile apart, to distribute use throughout the area.

FENCES

Fences are constructed to provide management boundaries such as to provide pastures or outside boundaries for a grazing allotment. Because of the potential for impact to wildlife movement, fence design is highly variable. Wire would be smooth, barbed, mesh, or combined, dependent on the wildlife species involved. Steel line posts will be spaced a minimum of 16.5 feet apart. Wooden braces will usually be spaced one-quarter mile apart. Fences may be modified in heavy snow or animal migration areas by using wood poles.

CATTLEGUARDS

Cattleguards will be installed where fences cross heavily traveled roads or in situations where opened gates would severely compromise management. Cattleguard grids vary in weight and size requirements, but usually require a backhoe to install.

APPENDIX D-5

LIVESTOCK GRAZING BY ALTERNATIVE

APPENDIX D-5

LIVESTOCK GRAZING BY ALTERNATIVE "I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2140	Gilchrest DLE[4]	A	No	42	0 (4)	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2119	Soaphole Common	A	No	1,352	0 (217)	0	0	0	None
		B	Yes		312 (82)	1,898	0	0	GS
		C	Yes		84 (82)	508	0	0	GS
		Preferred	Yes		84 (82)	508	0	0	GS
2077	North LaBarge Common	A	No	14,501	0 (2,871)	0	0	0	GS
		B	No		2,392 (790)	19,975	0	0	GS
		C	No		999 (790)	8,342	0	0	GS
		Preferred	No		999 (790)	8,342	0	0	GS
2201	Upper North LaBarge	A	No	1,985	0 (224)	0	0	0	GS
		B	No		857 (25)	6,774	2	0	GS
		C	No		536 (25)	4,237	1	0	GS
		Preferred	No		536 (25)	4,237	1	0	GS
2028	Upper Bench Corral	A	No	2,009	0 (201)	0	0	0	None
		B	Yes		787	5,585	0	3	GS
		C	Yes		393	2,792	0	3	GS
		Preferred	Yes		393	2,792	0	3	GS
2005	South LaBarge Common	A	No	10,076	0 (1,067)	0	0	0	None
		B	Yes		2,517 (59)	24,468	5	26	GS
		C	Yes		1,221 (59)	11,871	1	26	GS
		Preferred	Yes		1,221 (59)	11,871	1	26	GS
2134	Cranor Building	A	No	11	0 (1)	0	0	0	None
		B	No		0	7	0	0	None
		C	No		0	3	0	0	None
		Preferred	No		0	0	0	0	None
2150	Deer Hills Common	A	No	731	0 (98)	0	0	0	None
		B	Yes		183 (25)	1,718	2	0	GS
		C	Yes		38 (25)	355	2	0	GS
		Preferred	Yes		38 (25)	355	2	0	GS
2062	Bench Corral Individual	A	No	3,428	0 (343)	0	0	0	None
		B	Yes		769	5,967	0	5	GS
		C	Yes		734	5,700	0	5	GS
		Preferred	Yes		734	5,700	0	5	GS
2127	McNinch Deer Hills	A	No	252	0 (28)	0	0	0	None
		B	Yes		51 (3)	609	0	2	GS
		C	Yes		4 (3)	45	0	2	GS
		Preferred	Yes		4 (3)	45	0	2	GS
2129	West of Ranch	A	No	130	0 (20)	0	0	0	None
		B	Yes		23 (7)	215	0	0	GS
		C	Yes		0 (7)	0	0	0	GS
		Preferred	Yes		0 (7)	0	0	0	GS
2073	Reardon Canyon	A	No	1,121	0 (127)	0	0	0	None
		B	Yes		8 (15)	145	2	4	GS
		C	Yes		8 (15)	145	2	4	GS
		Preferred	Yes		8 (15)	145	2	4	GS
2035	Deer Hills Ind.	A	No	698	0 (77)	0	0	0	GS
		B	No		213 (7)	1,792	0	0	GS
		C	No		112 (7)	944	0	0	GS
		Preferred	No		112 (7)	944	0	0	GS

APPENDIX D-5

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2173	Blue Rim Ind.	A	No	3,258	0 (326)	0	0	0	None
		B	Yes		655	7,356	2	0	GS
		C	Yes		420	4,723	2	0	GS
		Preferred	Yes		420	4,723	2	0	GS
2171	Brodie Draw	A	No	385	0 (39)	0	0	0	None
		B	Yes		126	981	1	0	GS
		C	Yes		63	490	1	0	GS
		Preferred	Yes		63	490	1	0	GS
2076	Fish Creek	A	No	1,597	0 (190)	0	0	0	None
		B	Yes		65	523	0	0	GS
		C	Yes		33	261	0	0	GS
		Preferred	Yes		33	261	0	0	GS
2144	Horse Creek Lower	A	No	255	0 (26)	0	0	0	None
		B	Yes		84	720	0	0	GS
		C	Yes		42	360	0	0	GS
		Preferred	Yes		42	360	0	0	GS
2007	Fayette Ind.	A	No	270	0 (27)	0	0	0	None
		B	Yes		58	307	1	0	GS
		C	Yes		5	29	1	0	GS
		Preferred	Yes		5	29	1	0	GS
2027	Mickelson-Bray	A	No	238	0 (24)	0	0	0	None
		B	Yes		93	643	1	0	GS
		C	Yes		46	327	1	0	GS
		Preferred	Yes		46	327	1	0	GS
2051	Square Top Common	A	No	4,469	0 (447)	0	0	0	None
		B	Yes		1,768	15,245	0	6	GS
		C	Yes		876	7,545	0	6	GS
		Preferred	Yes		876	7,545	0	6	GS
2115	North Pasture	A	No	31	0 (3)	0	0	0	None
		B	Yes		8	122	0	0	GS
		C	Yes		6	99	0	0	GS
		Preferred	Yes		6	99	0	0	GS
2136	East of DLE	A	No	271	0 (27)	0	0	0	None
		B	Yes		3	30	0	0	GS
		C	Yes		3	30	0	0	GS
		Preferred	Yes		3	30	0	0	GS
2174	Q5 Soaphole	A	No	755	0 (76)	0	0	0	None
		B	Yes		292	1,117	1	0	GS
		C	Yes		139	531	1	0	GS
		Preferred	Yes		139	531	1	0	GS
2053	Clark-Bloom	A	No	262	0 (26)	0	0	0	None
		B	Yes		80	744	1	0	GS
		C	Yes		34	315	1	0	GS
		Preferred	Yes		34	315	1	0	GS
2200	Cora Y Common	A	No	120	0 (12)	0	0	0	None
		B	Yes		89	666	0	0	GS
		C	Yes		45	333	0	0	GS
		Preferred	Yes		45	333	0	0	GS
2132	Marincic Mesa	A	No	350	0 (35)	0	0	0	None
		B	Yes		64	1,093	0	2	GS
		C	Yes		1	27	0	2	GS
		Preferred	Yes		1	27	0	2	GS
2157	Hot Springs Pasture Ind.	A	No	26	0 (3)	0	0	0	None
		B	No		0	7	0	0	None
		C	No		0	6	0	0	None
		Preferred	No		0	6	0	0	None
2156	Hot Springs Individual	A	No	6	0 (1)	0	0	0	None
		B	No		0	8	0	0	None
		C	No		0	4	0	0	None
		Preferred	No		0	4	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2032	D.B. Deer Hills	A	No	293	0 (39)	0	0	0	GS
		B	No		187 (10)	900	0	0	GS
		C	No		43 (10)	447	0	0	GS
		Preferred	No		43 (10)	447	0	0	GS
2036	Dead Indian Dome	A	No	411	0 (41)	0	0	0	GS
		B	No		142	749	0	0	GS
		C	No		77	408	0	0	GS
		Preferred	No		77	408	0	0	GS
2006	Round Valley Ryegrass	A	No	1,692	0 (169)	0	0	0	GS
		B	No		657	2,838	4	0	GS
		C	No		328	1,419	4	0	GS
		Preferred	No		328	1,419	4	0	GS
2002	40-Rod Common	A	No	542	0 (54)	0	0	0	GS
		B	No		210	1,388	1	0	GS
		C	No		105	694	1	0	GS
		Preferred	No		105	694	1	0	GS
2071	Horse Creek Pasture No.2	A	No	240	0 (24)	0	0	0	None
		B	Yes		88	1,342	0	0	GS
		C	Yes		44	671	0	0	GS
		Preferred	Yes		44	671	0	0	GS
2084	Lower Bench Corral	A	No	2,635	0 (264)	0	0	0	None
		B	Yes		1,021	8,721	0	8	GS
		C	Yes		510	4,359	0	8	GS
		Preferred	Yes		510	4,359	0	8	GS
2095	Muddy Creek Individual	A	No	113	0 (11)	0	0	0	None
		B	Yes		0	5	0	0	GS
		C	Yes		0	0	0	0	GS
		Preferred	Yes		0	0	0	0	GS
2194	LaBarge Unit I	A	No	140	0 (16)	0	0	0	None
		B	No		35 (2)	181	0	0	None
		C	No		30 (2)	157	0	0	None
		Preferred	No		30 (2)	157	0	0	None
2049	Mt. Airy	A	No	757	0 (76)	0	0	0	None
		B	Yes		269	3,458	2	2	GS
		C	Yes		123	1,586	2	0	GS
		Preferred	Yes		123	1,586	2	0	GS
2196	Johnson Ridge	A	No	165	0 (20)	0	0	0	None
		B	Yes		150 (3)	711	1	0	GS
		C	Yes		75 (3)	355	1	0	GS
		Preferred	Yes		75 (3)	355	1	0	GS
2102	James Ryegrass	A	No	728	0 (73)	0	0	0	GS
		B	No		292	1,416	0	0	GS
		C	No		141	708	0	0	GS
		Preferred	No		141	708	0	0	GS
2056	Three Island Individual	A	No	120	0 (12)	0	0	0	None
		B	Yes		46	438	0	0	GS
		C	Yes		23	219	0	0	GS
		Preferred	Yes		23	219	0	0	GS
2034	Adjacent To Ranch	A	No	26	0 (3)	0	0	0	None
		B	No		14	44	0	0	None
		C	No		12	22	0	0	None
		Preferred	No		12	22	0	0	None
2015	Antelope Flat	A	No	451	0	0	0	0	None
		B	No		161	322	0	0	None
		C	No		80	161	0	0	None
		Preferred	No		80	161	0	0	None
2135	Ball Ind.	A	No	107	0	0	0	0	None
		B	No		33	195	0	0	None
		C	No		5	97	0	0	None
		Preferred	No		5	97	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2133	Ball Horse Creek	A	No	87	0	0	0	0	None
		B	No		35	119	0	0	None
		C	No		17	59	0	0	None
		Preferred	No		17	59	0	0	None
2141	Beaver Creek Individual	A	No	129	0	0	0	0	None
		B	No		30	342	0	0	None
		C	No		22	242	0	0	None
		Preferred	No		22	242	0	0	None
2142	Beaver Meadows	A	No	20	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2152	Beaver Horse Creek	A	No	584	0	0	0	0	None
		B	No		200	789	0	0	None
		C	No		100	394	0	0	None
		Preferred	No		100	394	0	0	None
2065	Beecher Individual	A	No	306	0	0	0	0	None
		B	No		115	508	0	0	None
		C	No		57	254	0	0	None
		Preferred	No		57	254	0	0	None
2192	Big Sandy Individual	A	No	30	0	0	0	0	None
		B	No		6	56	0	0	None
		C	No		6	56	0	0	None
		Preferred	No		6	56	0	0	None
2021	Boulder Creek Tract	A	No	28	0	0	0	0	None
		B	No		10	102	0	0	None
		C	No		5	46	0	0	None
		Preferred	No		5	46	0	0	None
2020	Boulder Lake Common	A	No	835	0	0	0	0	None
		B	No		292	1,716	0	0	None
		C	No		126	743	0	0	None
		Preferred	No		126	743	0	0	None
2122	Boulder SDW	A	No	55	0	0	0	0	None
		B	No		33	146	0	0	None
		C	No		18	81	0	0	None
		Preferred	No		18	81	0	0	None
2117	Boulter Pasture	A	No	7	0	0	0	0	None
		B	No		0	10	0	0	None
		C	No		0	5	0	0	None
		Preferred	No		0	5	0	0	None
2024	Bousman Individual	A	No	755	0	0	0	0	GS
		B	No		316	2,009	0	0	GS
		C	No		158	1,008	0	0	GS
		Preferred	No		158	1,008	0	0	GS
2033	Budd Creek Creek	A	No	150	0	0	0	0	GS
		B	No		34	381	0	0	GS
		C	No		17	191	0	0	GS
		Preferred	No		17	191	0	0	GS
2050	Burch Ind.	A	No	37	0	0	0	0	None
		B	No		2	33	0	0	None
		C	No		1	16	0	0	None
		Preferred	No		1	16	0	0	None
2191	Butte Ind.	A	No	7	0	0	0	0	None
		B	No		2	23	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2038	Buyer Horse Creek	A	No	351	0	0	0	0	None
		B	No		137	674	0	0	None
		C	No		68	337	0	0	None
		Preferred	No		68	337	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE

"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2064	Camp Creek Individual	A	No	715	0	0	0	0	None
		B	No		208	928	0	0	None
		C	No		104	464	0	0	None
		Preferred	No		104	464	0	0	None
2158	Canyon Ditch	A	No	125	0	0	0	0	None
		B	No		50	220	0	0	None
		C	No		25	110	0	0	None
		Preferred	No		25	110	0	0	None
2185	Chain Lakes	A	No	265	0	0	0	0	None
		B	No		85	314	0	0	None
		C	No		42	157	0	0	None
		Preferred	No		42	157	0	0	None
2168	Chalk Butte	A	No	244	0	0	0	0	None
		B	No		53	748	1	0	None
		C	No		7	103	0	0	None
		Preferred	No		7	103	0	0	None
2041	Chapel Ind.	A	No	257	0	0	0	0	None
		B	No		12	294	1	0	None
		C	No		12	294	0	0	None
		Preferred	No		12	294	0	0	None
2047	Circle 9 Individual	A	No	63	0	0	0	0	None
		B	No		6	93	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2054	Cora Peak Individual	A	No	150	0	0	0	0	None
		B	No		58	310	0	0	None
		C	No		29	155	0	0	None
		Preferred	No		29	155	0	0	None
2220	Cora Road Individual	A	No	82	0	0	0	0	None
		B	No		25	84	0	0	None
		C	No		12	42	0	0	None
		Preferred	No		12	42	0	0	None
2221	Cora SDW	A	No	754	0	0	0	0	None
		B	No		514	2,384	0	0	None
		C	No		125	583	0	0	None
		Preferred	No		125	583	0	0	None
2097	Cottonwood Common	A	No	345	0	0	0	0	None
		B	No		118	1,042	1	0	None
		C	No		54	476	0	0	None
		Preferred	No		54	476	0	0	None
2042	Cottonwood Meadow	A	No	236	0	0	0	0	None
		B	No		0	17	0	0	None
		C	No		0	17	0	0	None
		Preferred	No		0	17	0	0	None
2052	Cowley Tract	A	No	10	0	0	0	0	None
		B	No		1	26	0	0	None
		C	No		0	15	0	0	None
		Preferred	No		0	15	0	0	None
2057	Dack	A	No	90	0	0	0	0	None
		B	No		56	267	0	0	None
		C	No		33	133	0	0	None
		Preferred	No		33	133	0	0	None
2000	Daniel Ridge	A	No	10	0 (1,234)	0	0	0	None
		B	No		19	38	0	0	None
		C	No		11	22	0	0	None
		Preferred	No		11	22	0	0	None
2147	Daniel Y Individual	A	No	107	0	0	0	0	None
		B	No		35	359	0	0	None
		C	No		20	209	0	0	None
		Preferred	No		20	209	0	0	None

APPENDIX D-5

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2040	Desert Common	A	No	9,337	0 (300)	0	0	0	GS
		B	No		57	793	0	0	GS
		C[5]	No		57 (1,200)	793	0	0	GS
		Preferred	No		57	793	0	0	GS
2026	Desert Land Entry	A	No	75	0	0	0	0	None
		B	No		2	28	0	0	None
		C	No		0	2	0	0	None
		Preferred	No		0	2	0	0	None
2203	Ditch Ind.	A	No	19	0	0	0	0	None
		B	No		12	83	0	0	None
		C	No		6	41	0	0	None
		Preferred	No		6	41	0	0	None
2100	Dry Piney Individual	A	No	30	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2011	East Cora Road Ind.	A	No	14	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2012	East Cora Road Meadow	A	No	64	0	0	0	0	None
		B	No		30	60	0	0	None
		C	No		15	30	0	0	None
		Preferred	No		15	30	0	0	None
2022	East Fork Common	A	No	793	0	0	0	0	None
		B	No		226	1,965	0	0	None
		C	No		110	953	0	0	None
		Preferred	No		110	953	0	0	None
2029	Ed Roe	A	No	81	0	0	0	0	None
		B	No		32	156	0	0	None
		C	No		16	78	0	0	None
		Preferred	No		16	78	0	0	None
2061	Eubank South LaBarge	A	No	80	0	0	0	0	None
		B	No		0	11	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2188	Fall Creek Individual	A	No	70	0	0	0	0	None
		B	No		18	67	0	0	None
		C	No		9	33	0	0	None
		Preferred	No		9	33	0	0	None
2046	Fall Creek Pasture	A	No	10	0	0	0	0	None
		B	No		3	12	0	0	None
		C	No		1	6	0	0	None
		Preferred	No		1	6	0	0	None
2014	Fish Hatchery Individual	A	No	56	0	0	0	0	None
		B	No		19	101	0	0	None
		C	No		11	61	0	0	None
		Preferred	No		11	61	0	0	None
2081	Fox-Yose LaBarge Creek	A	No	693	0	0	0	0	GS
		B	No		181	1,882	0	0	GS
		C	No		91	941	0	0	GS
		Preferred	No		91	941	0	0	GS
2009	Fremont Butte Common	A	No	2,410	0	0	0	0	None
		B	No		732	6,382	0	0	None
		C	No		231	2,021	0	0	None
		Preferred	No		231	2,021	0	0	None
2181	Fremont Butte Individual	A	No	417	0	0	0	0	GS
		B	No		143	1,502	0	0	GS
		C	No		58	616	0	0	GS
		Preferred	No		58	616	0	0	GS

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2044	Fremont Lake Individual	A	No	40	0	0	0	0	None
		B	No		10	186	0	0	None
		C	No		5	93	0	0	None
		Preferred	No		5	93	0	0	None
2048	Gilligan Individual	A	No	107	0	0	0	0	None
		B	No		47	250	0	0	None
		C	No		21	114	0	0	None
		Preferred	No		21	114	0	0	None
2004	Glascow Ind.	A	No	24	0	0	0	0	None
		B	No		10	35	0	0	None
		C	No		6	18	0	0	None
		Preferred	No		6	18	0	0	None
2167	Green River Unit	A	No	40	0	0	0	0	None
		B	No		10	42	0	0	None
		C	No		5	21	0	0	None
		Preferred	No		5	21	0	0	None
2143	Grindstone Soaphole	A	No	781	0	0	0	0	None
		B	No		167	1,054	0	0	None
		C	No		20	129	0	0	None
		Preferred	No		20	129	0	0	None
2086	Guio Sections	A	No	417	0	0	0	0	None
		B	No		118	782	0	0	None
		C	No		123	482	0	0	None
		Preferred	No		123	482	0	0	None
2177	Hay Draw Individual	A	No	77	0	0	0	0	None
		B	No		24	68	0	0	None
		C	No		12	34	0	0	None
		Preferred	No		12	34	0	0	None
2126	Hay Gulch	A	No	75	0	0	0	0	None
		B	No		56	466	0	0	None
		C	No		37	307	0	0	None
		Preferred	No		37	307	0	0	None
2019	Heifer Pasture	A	No	86	0	0	0	0	None
		B	No		29	55	0	0	None
		C	No		15	28	0	0	None
		Preferred	No		15	28	0	0	None
2095	Hittle Ind.	A	No	95	0	0	0	0	None
		B	No		28	72	0	0	None
		C	No		12	30	0	0	None
		Preferred	No		12	30	0	0	None
2151	Hoback Rim Individual	A	No	695	0	0	0	0	None
		B	No		185	584	0	0	None
		C	No		123	389	0	0	None
		Preferred	No		123	389	0	0	None
2003	Homestead Individual	A	No	45	0	0	0	0	None
		B	No		17	61	0	0	None
		C	No		9	31	0	0	None
		Preferred	No		9	31	0	0	None
2189	Horse Creek Bluff Ind.	A	No	12	0	0	0	0	None
		B	No		0	20	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2108	Horse Creek Isolated	A	No	35	0	0	0	0	None
		B	No		9	41	0	0	None
		C	No		5	21	0	0	None
		Preferred	No		5	21	0	0	None
2030	Horse Creek Individual	A	No	80	0	0	0	0	None
		B	No		29	159	0	0	None
		C	No		14	79	0	0	None
		Preferred	No		14	79	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2088	Horse Creek Ryegrass I.	A	No	449	0	0	0	0	None
		B	No		185	1,468	0	0	None
		C	No		92	734	0	0	None
		Preferred	No		92	734	0	0	None
2070	Horse Creek Pasture No. 1	A	No	74	0	0	0	0	None
		B	No		15	32	0	0	None
		C	No		7	16	0	0	None
		Preferred	No		7	16	0	0	None
2145	Horse Creek Upper	A	No	109	0	0	0	0	None
		B	No		27	244	0	0	None
		C	No		15	134	0	0	None
		Preferred	No		15	134	0	0	None
2180	Irish Canyon Tract	A	No	30	0	0	0	0	None
		B	No		6	59	0	0	None
		C	No		3	33	0	0	None
		Preferred	No		3	33	0	0	None
2018	Isolated Tract	A	No	83	0	0	0	0	None
		B	No		29	183	0	0	None
		C	No		14	91	0	0	None
		Preferred	No		14	91	0	0	None
2107	J&K Daniel Ridge	A	No	47	0	0	0	0	None
		B	No		19	202	0	0	None
		C	No		9	101	0	0	None
		Preferred	No		9	101	0	0	None
2118	Jewett Ryegrass	A	No	440	0	0	0	0	None
		B	No		157	1,462	0	0	None
		C	No		86	803	0	0	None
		Preferred	No		86	803	0	0	None
2067	Johnson Huhtah I.	A	No	136	0	0	0	0	None
		B	No		40	277	0	0	None
		C	No		26	182	0	0	None
		Preferred	No		26	182	0	0	None
2099	Jory Ind.	A	No	50	0	0	0	0	None
		B	No		3	15	0	0	None
		C	No		3	15	0	0	None
		Preferred	No		3	15	0	0	None
2075	LaBarge Creek Ranch Ind.	A	No	42	0	0	0	0	None
		B	No		0	11	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2091	LaBarge Ind.	A	No	337	0	0	0	0	None
		B	No		99	697	0	0	None
		C	No		58	412	0	0	None
		Preferred	No		58	412	0	0	None
2055	Lauzer Marsh Creek	A	No	166	0	0	0	0	None
		B	No		60	262	0	0	None
		C	No		30	131	0	0	None
		Preferred	No		30	131	0	0	None
2104	Long Pasture	A	No	352	0	0	0	0	None
		B	No		105	246	0	0	None
		C	No		52	123	0	0	None
		Preferred	No		52	123	0	0	None
2017	Lower Pasture Individual	A	No	284	0	0	0	0	None
		B	No		105	695	0	0	None
		C	No		52	347	0	0	None
		Preferred	No		52	347	0	0	None
2137	Lower Red Canyon	A	No	101	0	0	0	0	None
		B	No		29	159	0	0	None
		C	No		23	128	0	0	None
		Preferred	No		23	128	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2124	Luman Ind.	A	No	600	0	0	0	0	None
		B	No		183	902	0	0	None
		C	No		60	299	0	0	None
		Preferred	No		60	299	0	0	None
2039	Maki Creek	A	No	135	0	0	0	0	None
		B	No		38	183	0	0	None
		C	No		19	91	0	0	None
		Preferred	No		19	91	0	0	None
2098	McKinsey Ind.	A	No	50	0	0	0	0	None
		B	No		12	30	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2193	Merna Horse Creek	A	No	65	0	0	0	0	None
		B	No		14	58	0	0	None
		C	No		7	29	0	0	None
		Preferred	No		7	29	0	0	None
2031	Mesa Common	A	No	4,701	0	0	0	0	None
		B	No		1,207	14,338	0	0	None
		C	No		295	3,510	0	0	None
		Preferred	No		295	3,510	0	0	None
2148	Miller Daniel Ridge	A	No	50	0	0	0	0	None
		B	No		23	186	0	0	None
		C	No		11	93	0	0	None
		Preferred	No		11	93	0	0	None
2178	Miller Home Place	A	No	24	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2149	Miller Piney Individual	A	No	42	0	0	0	0	None
		B	No		1	11	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2186	Muddy Corral Individual	A	No	170	0	0	0	0	None
		B	No		3	19	0	0	None
		C	No		3	19	0	0	None
		Preferred	No		3	19	0	0	None
2187	189 Muddy Meadows	A	No	36	0	0	0	0	None
		B	No		6	2	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2112	Muddy Meadows	A	No	20	0	0	0	0	None
		B	No		6	11	0	0	None
		C	No		3	5	0	0	None
		Preferred	No		3	5	0	0	None
2068	Muleshoe Individual	A	No	683	0	0	0	0	None
		B	No		3	39	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2225	New Fork Individual	A	No	8	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2160	Noble Cora Peak	A	No	300	0	0	0	0	None
		B	No		114	710	1	0	None
		C	No		59	371	0	0	None
		Preferred	No		59	371	0	0	None
2159	Noble Tracts	A	No	36	0	0	0	0	None
		B	No		20	104	0	0	None
		C	No		10	52	0	0	None
		Preferred	No		10	52	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2161	Norris North Piney	A	No	144	0	0	0	0	None
		B	No		19	78	0	0	None
		C	No		14	54	0	0	None
		Preferred	No		14	54	0	0	None
2175	North Beaver Tracts	A	No	190	0	0	0	0	None
		B	No		68	253	0	0	None
		C	No		34	126	0	0	None
		Preferred	No		34	126	0	0	None
2169	North Hoback Rim	A	No	113	0	0	0	0	None
		B	No		14	243	0	0	None
		C	No		8	135	0	0	None
		Preferred	No		8	135	0	0	None
2123	NW Square Top	A	No	980	0	0	0	0	None
		B	No		388	2,726	0	0	None
		C	No		190	1,333	0	0	None
		Preferred	No		190	1,333	0	0	None
2163	O'Neil Individual	A	No	80	0	0	0	0	None
		B	No		4	94	0	0	None
		C	No		4	94	0	0	None
		Preferred	No		4	94	0	0	None
2155	Piney Bridge Individual	A	No	131	0	0	0	0	None
		B	No		8	87	0	0	None
		C	No		8	87	0	0	None
		Preferred	No		8	87	0	0	None
2166	Pine Creek	A	No	20	0	0	0	0	None
		B	No		8	65	0	0	None
		C	No		4	33	0	0	None
		Preferred	No		4	33	0	0	None
2139	Piney Ind.	A	No	178	0	0	0	0	None
		B	No		42	275	0	0	None
		C	No		21	137	0	0	None
		Preferred	No		21	137	0	0	None
2222	Price-Beecher	A	No	50	0	0	0	0	None
		B	No		20	74	0	0	None
		C	No		10	37	0	0	None
		Preferred	No		10	37	0	0	None
2172	Price-Horse Creek	A	No	40	0	0	0	0	None
		B	No		12	122	0	0	None
		C	No		7	80	0	0	None
		Preferred	No		7	80	0	0	None
2176	Q5 Antelope Flat Ind.	A	No	122	0	0	0	0	None
		B	No		45	176	0	0	None
		C	No		22	88	0	0	None
		Preferred	No		22	88	0	0	None
2138	Rathburn Ind.	A	No	236	0	0	0	0	None
		B	No		60	189	0	0	None
		C	No		30	94	0	0	None
		Preferred	No		30	94	0	0	None
2025	Red Canyon	A	No	994	0	0	0	0	None
		B	No		332	1,985	0	0	None
		C	No		185	1,108	0	0	None
		Preferred	No		185	1,108	0	0	None
2090	Rief Allot.	A	No	66	0	0	0	0	None
		B	No		27	74	0	0	None
		C	No		14	37	0	0	None
		Preferred	No		14	37	0	0	None
2103	Reservoir Pasture	A	No	81	0	0	0	0	None
		B	No		33	164	0	0	None
		C	No		16	82	0	0	None
		Preferred	No		16	82	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2205	Ro. Valley Ryegrass Ind.	A	No	1,616	0	0	0	0	None
		B	No		603	3,765	0	0	None
		C	No		307	1,922	0	0	None
		Preferred	No		307	1,922	0	0	None
2059	Ryegrass Individual	A	No	245	0	0	0	0	None
		B	No		76	775	0	0	None
		C	No		38	387	0	0	None
		Preferred	No		38	387	0	0	None
2083	Sagebrush Basin	A	No	126	0	0	0	0	None
		B	No		12	222	0	0	None
		C	No		6	111	0	0	None
		Preferred	No		6	111	0	0	None
2184	Sandy Fenced	A	No	30	0	0	0	0	None
		B	No		22	184	0	0	None
		C	No		11	92	0	0	None
		Preferred	No		11	92	0	0	None
2110	Sandy Upper Muddy Meadow	A	No	39	0	0	0	0	None
		B	No		11	157	0	0	None
		C	No		4	60	0	0	None
		Preferred	No		4	60	0	0	None
2153	Scab Creek	A	No	607	0	0	0	0	None
		B	No		138	2,113	0	0	None
		C	No		77	1,186	0	0	None
		Preferred	No		77	1,186	0	0	None
2066	School Section Individual	A	No	158	0	0	0	0	None
		B	No		47	548	0	0	None
		C	No		30	348	0	0	None
		Preferred	No		30	348	0	0	None
2128	Section 18 Individual	A	No	26	0	0	0	0	None
		B	No		9	99	0	0	None
		C	No		5	50	0	0	None
		Preferred	No		5	50	0	0	None
2183	Soda Lake Common	A	No	156	0	0	0	0	None
		B	No		53	372	0	0	None
		C	No		27	190	0	0	None
		Preferred	No		27	190	0	0	None
2182	South Horse Creek	A	No	10	0	0	0	0	None
		B	No		2	21	0	0	None
		C	No		1	11	0	0	None
		Preferred	No		1	11	0	0	None
2131	South Ridge Soaphole	A	No	97	0	0	0	0	None
		B	No		17	192	0	0	None
		C	No		11	123	0	0	None
		Preferred	No		11	123	0	0	None
2116	Southwest Pasture	A	No	59	0	0	0	0	None
		B	No		22	174	0	0	None
		C	No		10	87	0	0	None
		Preferred	No		10	87	0	0	None
2195	South Piney Individual	A	No	82	0	0	0	0	None
		B	No		25	254	0	0	None
		C	No		12	127	0	0	None
		Preferred	No		12	127	0	0	None
2074	South Piney Ranch	A	No	92	0	0	0	0	None
		B	No		16	153	0	0	None
		C	No		16	153	0	0	None
		Preferred	No		16	153	0	0	None
2072	Spade Ind.	A	No	688	0	0	0	0	None
		B	No		277	966	0	0	None
		C	No		139	483	0	0	None
		Preferred	No		139	483	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2197	Springman Creek	A	No	150	0	0	0	0	None
		B	No		44	356	0	0	None
		C	No		30	237	0	0	None
		Preferred	No		30	237	0	0	None
2016	State Section	A	No	82	0	0	0	0	None
		B	No		33	65	0	0	None
		C	No		17	33	0	0	None
		Preferred	No		17	33	0	0	None
2008	Stud Horse Butte	A	No	2,173	0	0	0	0	None
		B	No		223	1,422	0	0	None
		C	No		223	1,422	0	0	None
		Preferred	No		223	1,422	0	0	None
2190	Steele Ind.	A	No	182	0	0	0	0	None
		B	No		70	501	0	0	None
		C	No		35	250	0	0	None
		Preferred	No		35	250	0	0	None
2105	Todd Pasture	A	No	11	0	0	0	0	None
		B	No		3	13	0	0	None
		C	No		1	7	0	0	None
		Preferred	No		1	7	0	0	None
2085	Upper Billies Individual	A	No	2,214	0	0	0	0	None
		B	No		851	3,353	0	0	None
		C	No		425	1,676	0	0	None
		Preferred	No		425	1,676	0	0	None
2063	Upper Muddy Individual	A	No	1,874	0	0	0	0	None
		B	No		692	1,993	0	0	None
		C	No		376	1,083	0	0	None
		Preferred	No		376	1,083	0	0	None
2087	Upper Post	A	No	123	0	0	0	0	None
		B	No		51	120	0	0	None
		C	No		29	69	0	0	None
		Preferred	No		29	69	0	0	None
2202	Viola Allot.	A	No	81	0	0	0	0	None
		B	No		18	148	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2069	Warren Bridge Individual	A	No	48	0	0	0	0	None
		B	No		27	80	0	0	None
		C	No		13	40	0	0	None
		Preferred	No		13	40	0	0	None
2101	Webb Draw Pasture	A	No	556	0	0	0	0	None
		B	No		206	800	0	0	None
		C	No		103	400	0	0	None
		Preferred	No		103	400	0	0	None
2164	West Cora Peak	A	No	273	0	0	0	0	None
		B	No		104	756	1	0	None
		C	No		52	378	0	0	None
		Preferred	No		52	378	0	0	None
2121	W. Fremont Ridge	A	No	293	0	0	0	0	None
		B	No		108	608	1	0	None
		C	No		54	304	0	0	None
		Preferred	No		54	304	0	0	None
2037	West Ind.	A	No	525	0	0	0	0	GS
		B	No		136	681	0	0	GS
		C	No		123	363	0	0	GS
		Preferred	No		123	363	0	0	GS
2013	Willow Lake Tract	A	No	26	0	0	0	0	None
		B	No		6	28	0	0	None
		C	No		3	14	0	0	None
		Preferred	No		3	14	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2204	Yose Ind.	A	No	150	0	0	0	0	None
		B	No		9	123	1	0	None
		C	No		9	123	0	0	None
		Preferred	No		9	123	0	0	None
2198	Beaver Tract I	A	No	48	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2206	Bird Individual	A	No	14	0	0	0	0	None
		B	No		0	6	0	0	None
		C	No		0	6	0	0	None
		Preferred	No		0	6	0	0	None
2058	Bloom Tracts	A	No	38	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2125	Bondurant Individual	A	No	10	0	0	0	0	None
		B	No		0	5	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2217	Cottonwood Gap	A	No	155	0	0	0	0	None
		B	No		0	2	0	0	None
		C	No		0	2	0	0	None
		Preferred	No		0	2	0	0	None
2082	East Fork River Tract	A	No	3	0	0	0	0	None
		B	No		0	7	0	0	None
		C	No		0	4	0	0	None
		Preferred	No		0	4	0	0	None
2162	5 Acre Pasture	A	No	12	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2010	Fontenelle Meadows	A	No	56	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2080	Fox-LaBarge Individual	A	No	17	0	0	0	0	None
		B	No		3	50	0	0	None
		C	No		0	9	0	0	None
		Preferred	No		0	9	0	0	None
2089	Hansen Tract	A	No	14	0	0	0	0	None
		B	No		0	3	0	0	None
		C	No		0	2	0	0	None
		Preferred	No		0	2	0	0	None
2094	Hicks Pinedale Individual	A	No	14	0	0	0	0	None
		B	No		4	25	0	0	None
		C	No		2	12	0	0	None
		Preferred	No		2	12	0	0	None
2199	Horse Creek Road	A	No	43	0	0	0	0	None
		B	No		1	10	0	0	None
		C	No		0	5	0	0	None
		Preferred	No		0	5	0	0	None
2109	Individual Fenced	A	No	11	0	0	0	0	None
		B	No		0	13	0	0	None
		C	No		0	13	0	0	None
		Preferred	No		0	13	0	0	None
2078	Johnson Place Meadow	A	No	45	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None

APPENDIX D-5 (Continued)

LIVESTOCK GRAZING BY ALTERNATIVE
"I" Allotments[1]

Allotment Number	Allotment Name	Alternative[2]	Develop and Implement AMP	Existing Livestock AUMs	Change in Livestock Forage AUMs[3]	Acreage of Vegetation Manipulation	Number of Waters Developed	Miles of Fence	Type of Management System
2223	New Fork Tract Isol.	A	No	8	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2045	Pasture Pole Creek	A	No	54	0	0	0	0	None
		B	No		0	6	0	0	None
		C	No		0	3	0	0	None
		Preferred	No		0	3	0	0	None
2120	Piney Unit Fenced	A	No	19	0	0	0	0	None
		B	No		5	46	0	0	None
		C	No		3	23	0	0	None
		Preferred	No		3	23	0	0	None
2043	Pole Creek Individual	A	No	66	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2165	Rosene Ind.	A	No	42	0	0	0	0	None
		B	No		14	38	0	0	None
		C	No		7	19	0	0	None
		Preferred	No		7	19	0	0	None
2060	Ryegrass Isol. Tract	A	No	18	0	0	0	0	None
		B	No		3	23	0	0	None
		C	No		0	11	0	0	None
		Preferred	No		0	11	0	0	None
2111	Sandy Ind.	A	No	14	0	0	0	0	None
		B	No		4	51	0	0	None
		C	No		2	25	0	0	None
		Preferred	No		2	25	0	0	None
2114	Scattered Tracts	A	No	41	0	0	0	0	None
		B	No		18	101	0	0	None
		C	No		6	33	0	0	None
		Preferred	No		6	33	0	0	None
2154	Silver Creek	A	No	65	0	0	0	0	None
		B	No		8	16	0	0	None
		C	No		4	8	0	0	None
		Preferred	No		4	8	0	0	None
2079	S. Piney Place Meadow	A	No	39	0	0	0	0	None
		B	No		0	0	0	0	None
		C	No		0	0	0	0	None
		Preferred	No		0	0	0	0	None
2179	Spence Place Individual	A	No	8	0	0	0	0	None
		B	No		0	24	0	0	None
		C	No		0	19	0	0	None
		Preferred	No		0	19	0	0	None
2106	Webb Home Pasture	A	No	5	0	0	0	0	None
		B	No		5	102	0	0	None
		C	No		2	51	0	0	None
		Preferred	No		2	51	0	0	None

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[1] "I" Category allotments are listed by order of priority.

[2] AUMs available for livestock under the Preferred Alternative and Alternative C would be 50 percent of figure shown.

[3] The AUMs produced from vegetation manipulations may be used to replace AUMs lost (Number) to oil and gas activity, realty actions, and wild horses. Not all the AUMs may be allocated to livestock grazing.

[4] All alternatives - add allotment to East of DLE and manage under that allotment.

[5] Desert Common Allotment would be reduced by 1,200 AUMs if wild horses would be managed in the allotment under this alternative.

APPENDIX D-6

SEASON OF GRAZING USE AND KIND OF LIVESTOCK BY ALLOTMENT

APPENDIX D-6

SEASON OF GRAZING USE AND KIND OF LIVESTOCK BY ALLOTMENT

Allotment Number	Allotment Name	Livestock Kind	Dates Of Use
2000	Daniel Ridge Individual	Cattle	05/15 - 07/14
2002	40 Rod Common	Cattle	05/20 - 06/27
		Horses	07/01 - 10/15
2003	Homestead Individual	Cattle	05/01 - 09/30
2004	Glascow Individual	Cattle	05/01 - 08/30
2005	South LaBarge Common	Cattle	05/01 - 10/31
		Horses	05/01 - 07/31
		Sheep	06/01 - 06/30
2006	Round Valley Ryegrass Common	Cattle	05/01 - 06/30
2007	Fayette Individual	Cattle	05/16 - 06/15
2008	Stud Horse Common	Cattle	05/01 - 06/30
2009	Fremont Butte Common	Cattle	05/01 - 07/05
2010	Fontenelle Meadow Individual	Cattle	05/01 - 11/30
2011	East Cora Road Individual	Cattle	06/01 - 06/30
2012	East Cora Road Meadow	Cattle	06/01 - 07/31
2013	Willow Lake Tracts	Cattle	06/01 - 07/30
2014	Fish Hatchery Individual	Cattle	05/01 - 11/30
2015	Antelope Flat Common	Cattle	06/01 - 09/15
		Horses	05/01 - 09/15
2016	State Section Individual	Cattle	05/01 - 06/30
2017	Lower Pasture Individual	Cattle	06/01 - 06/30
2018	Isolated Tracts Individual	Cattle	06/01 - 06/30
2019	Heifer Pasture Individual	Cattle	06/01 - 06/30
2020	Boulder Lake Common	Cattle	06/01 - 10/15
		Horses	05/16 - 10/14
2021	Boulder Creek Tracts	Cattle	07/01 - 07/30
2022	East Fork Common	Cattle	05/01 - 07/05
2024	Bousman Individual	Cattle	05/15 - 09/15
2025	Red Canyon Common	Cattle	07/01 - 09/15
2026	Desert Land Entry Individual	Cattle	05/15 - 06/30
2027	Mickelson Bray Common	Cattle	05/01 - 07/05
2028	Upper Bench Corral Common	Cattle	05/01 - 06/30
		Horses	05/01 - 11/15
2029	Ed Roe Pasture Common	Cattle	07/01 - 09/15
2030	Horse Creek Individual	Cattle	06/10 - 08/09
2031	Mesa Common	Cattle	05/01 - 11/15
		Horses	05/01 - 10/31
2032	D. Budd Deer Hill Individual	Cattle	05/16 - 06/30
2033	Fish Creek Individual	Cattle	07/01 - 08/15
2034	Adjacent to Ranch Individual	Cattle	05/16 - 06/30
2035	Deer Hills Individual	Cattle	05/16 - 06/30
2036	Dead Indian Dome Individual	Cattle	05/20 - 06/30
2037	West Individual	Cattle	06/16 - 09/15
2038	Buyer Horse Creek Individual	Cattle	05/27 - 07/11
2039	Maki Creek Individual	Cattle	07/01 - 08/15

APPENDIX D-6 (Continued)

SEASON OF GRAZING USE AND KIND OF LIVESTOCK BY ALLOTMENT

Allotment Number	Allotment Name	Livestock Kind	Dates Of Use
2040	Desert Common	Cattle	05/01 - 06/21
		Cattle	10/10 - 10/31
		Sheep	11/01 - 11/30
2041	Chapel Individual	Cattle	05/15 - 06/14
2042	Cottonwood Meadows	Cattle	05/01 - 08/30
2043	Pole Creek Individual	Cattle	06/01 - 09/30
2044	Fremont Lake Individual	Cattle	06/01 - 09/30
2045	Pasture Pole Creek Individual	Cattle	06/01 - 11/13
2046	Fall Creek Pasture	Cattle	06/01 - 10/31
2047	Circle 9 Individual	Cattle	05/01 - 05/30
2048	Gilligan Individual	Cattle	07/01 - 08/30
2049	Mount Airy Common	Cattle	05/16 - 06/25
2050	Burch Individual	Cattle	05/01 - 08/21
2051	Square Top Common	Cattle	05/01 - 09/25
		Horses	05/01 - 11/30
		Sheep	05/10 - 07/01
2052	Cowley Tract	Cattle	05/06 - 07/05
2053	Clark-Bloom Common	Cattle	05/16 - 06/20
2054	Cora Peak Individual	Cattle	07/01 - 07/30
2055	Lauzer Marsh Creek Individual	Cattle	06/16 - 07/15
2056	Three Island Individual	Cattle	07/01 - 07/30
2057	Dack Individual	Cattle	08/01 - 08/31
2058	Bloom Tracts	Cattle	06/16 - 08/31
2059	Ryegrass Individual	Cattle	05/25 - 07/24
2060	Ryegrass Isolated	Cattle	05/25 - 06/08
2061	Eubank S. LaBarge Individual	Cattle	06/10 - 07/09
2062	Bench Corral Individual	Cattle	05/11 - 06/30
2063	Upper Muddy Individual	Cattle	07/01 - 10/15
2064	Camp Creek Individual	Cattle	07/16 - 09/30
2065	Beecher Individual	Cattle	07/01 - 09/30
2066	School Section Individual	Cattle	10/01 - 10/15
2067	Johnson Huhtah Individual	Cattle	07/01 - 10/15
2068	Muleshoe Individual	Cattle	05/10 - 07/09
2069	Warren Bridge Individual	Cattle	08/01 - 10/15
2070	Horse Creek Pasture 1	Cattle	05/11 - 05/31
2071	Horse Creek Pasture 2	Horses	05/01 - 10/31
2072	Spade Individual	Cattle	05/16 - 09/15
2073	Reardon Canyon Common	Cattle	05/10 - 08/15
2074	S. Piney Ranch Individual	Cattle	09/01 - 10/15
2075	LaBarge Creek Ranch Individual	Cattle	09/16 - 10/15
2076	Fish Creek Individual	Cattle	06/15 - 09/15
2077	N. LaBarge Common	Cattle	05/15 - 10/31
2078	Johnson Place Meadows	Cattle	09/16 - 10/15
2079	S. Piney Place Meadows	Cattle	09/16 - 10/15
2080	Fox LaBarge Individual	Cattle	05/01 - 10/15
2081	Fox-Yose Common	Cattle	05/16 - 06/30
2082	East Fork River Tract	Horses	05/01 - 05/31
2083	Sagebrush Basin Individual	Cattle	05/25 - 08/20
2084	Lower Bench Corral Common	Cattle	05/01 - 06/30
2085	Upper Billies Individual	Cattle	06/26 - 09/30
2086	Guio Sections Individual	Cattle	06/15 - 09/15
2087	Upper Post Individual	Cattle	06/26 - 09/30
2088	Horse Creek-Ryegrass	Cattle	05/15 - 06/14
2089	Hansen Tract	Horses	05/01 - 11/30
2090	Rief Individual	Cattle	06/01 - 07/31

APPENDIX D-6 (Continued)

SEASON OF GRAZING USE AND KIND OF LIVESTOCK BY ALLOTMENT

Allotment Number	Allotment Name	Livestock Kind	Dates Of Use
2091	LaBarge Individual	Cattle	07/01 - 09/30
2094	Hicks Pinedale Individual	Horses	05/01 - 11/30
2095	Muddy Creek Individual	Cattle	05/11 - 06/25
2096	Hittle Individual	Cattle	05/01 - 06/30
		Horses	06/01 - 06/30
2097	Cottonwood Common	Cattle	05/16 - 08/05
		Horses	06/01 - 07/31
2098	McKinsey Individual	Cattle	07/21 - 08/20
		Horses	05/25 - 08/20
2099	Jory Individual	Cattle	07/01 - 07/06
2100	Dry Piney Individual	Cattle	05/15 - 10/14
2101	Webb Draw Pasture	Cattle	05/20 - 07/01
		Horses	06/01 - 09/30
2102	James Ryegrass	Cattle	06/16 - 07/31
2103	Reservoir Pasture	Cattle	05/25 - 10/25
2104	Long Pasture	Cattle	06/05 - 10/25
2105	Todd Pasture	Cattle	06/01 - 11/15
2106	Webb Home Pasture	Cattle	06/01 - 10/31
2107	J&K Daniel Ridge	Cattle	05/26 - 06/25
2108	Horse Creek Isolated Tract	Cattle	11/01 - 11/30
2109	Individual Fenced	Cattle	05/01 - 10/15
2110	Sandy Upper Muddy Individual	Cattle	05/01 - 10/15
2111	Sandy Individual	Cattle	05/01 - 08/15
2112	Muddy Meadows	Cattle	05/01 - 09/30
2113	New Fork Individual	Cattle	05/10 - 08/23
2114	Scattered Tracts	Cattle	05/06 - 09/07
2115	North Pasture Individual	Horses	05/01 - 08/28
2116	Southwest Pasture Individual	Cattle	07/01 - 07/31
2117	Boulter Pasture	Cattle	11/01 - 11/30
2118	Jewett Ryegrass Individual	Cattle	05/22 - 07/01
2119	Soaphole Common	Cattle	05/09 - 07/15
		Horses	05/15 - 10/31
2120	Piney Unit Fenced	Cattle	06/01 - 08/20
2121	W. Fremont Ridge Common	Cattle	05/15 - 10/15
		Horses	05/15 - 10/15
2122	Boulder Stock Driveway	Cattle	09/16 - 09/30
2123	NW Square Top Individual	Cattle	05/01 - 06/28
2124	Luman Individual	Cattle	05/20 - 07/19
2125	Bondurant Individual	Cattle	05/01 - 09/30
2126	Hay Gulch	Cattle	05/16 - 05/28
2127	McNinch Deer Hill Individual	Cattle	05/21 - 06/30
2128	Section I8 Individual	Cattle	10/01 - 11/30
2129	West of Ranch Individual	Cattle	05/01 - 08/31
2130	Star Corral Individual	Cattle	07/01 - 08/15
2131	S. Ridge Soaphole Common	Cattle	05/01 - 06/15
2132	Marincic Mesa Individual	Cattle	05/01 - 09/30
2133	Ball Horse Creek Individual	Cattle	07/01 - 07/31
2134	Cranor Building Pasture	Cattle	07/01 - 07/31
2135	Ball Individual	Cattle	07/01 - 09/30
2136	East of DLE Individual	Cattle	06/01 - 06/30
2137	Lower Red Canyon Individual	Cattle	07/01 - 07/31
2138	Rathburn Individual	Cattle	05/01 - 10/31
2139	Piney Individual	Cattle	07/01 - 09/30
2140	Gilchrist DLE Individual	Cattle	05/01 - 10/31
2141	Beaver Creek Individual	Cattle	06/15 - 06/28
2142	Beaver Creek Meadow Individual	Cattle	06/15 - 06/28

APPENDIX D-6 (Continued)

SEASON OF GRAZING USE AND KIND OF LIVESTOCK BY ALLOTMENT

Allotment Number	Allotment Name	Livestock Kind	Dates Of Use
2143	Grindstone Soaphole	Cattle	05/10 - 06/09
2144	Lower Horse Creek Individual	Cattle	05/25 - 06/11
2145	Upper Horse Creek Individual	Cattle	05/01 - 05/31
2146	Home Individual	Cattle	05/01 - 05/31
2147	Daniel "Y" Individual	Cattle	05/16 - 06/15
2148	Daniel Ridge Individual	Horses	05/01 - 06/30
2149	Piney Individual	Horses	05/01 - 10/31
2150	Deer Hills Common	Cattle	05/16 - 06/30
		Horses	05/01 - 07/20
2151	Hoback Rim Individual	Cattle	06/01 - 10/31
2152	Beaver Horse Creek Individual	Cattle	05/01 - 06/30
2153	Scab Creek Individual	Cattle	05/01 - 10/15
		Horses	05/01 - 10/31
2154	Silver Creek Individual	Cattle	08/01 - 09/15
2155	Piney Bridge Individual	Cattle	05/05 - 06/10
2156	Hot Spring Individual	Horses	07/01 - 08/31
2157	Hot Spring Pasture Individual	Horses	07/01 - 08/31
2158	Canyon Ditch Individual	Cattle	06/01 - 06/15
		Horses	07/01 - 08/15
2159	Noble Tracts Individual	Cattle	05/16 - 09/15
2160	Noble Cora Peak Common	Cattle	05/20 - 06/19
2161	Norris N. Piney Individual	Cattle	05/15 - 09/14
2162	5 Acre Pasture Individual	Cattle	05/22 - 06/21
2163	O'Neil Individual	Cattle	05/16 - 06/15
2164	West Cora Peak Individual	Cattle	05/16 - 06/09
2165	Rosene Individual	Cattle	07/01 - 09/30
2166	Pine Creek Individual	Cattle	06/01 - 10/30
2167	Green River Unit Individual	Cattle	06/01 - 07/31
2168	Chalk Butte Common	Cattle	05/10 - 06/30
2169	N. Hoback Rim Individual	Cattle	05/01 - 07/15
2171	Brodie Draw Individual	Cattle	05/25 - 06/30
		Horses	05/08 - 10/22
2172	Price Horse Creek Individual	Horses	05/16 - 07/15
2173	Blue Rim Individual	Cattle	05/10 - 06/23
2174	Q5 Soaphole	Cattle	05/16 - 07/14
		Horses	05/01 - 05/31
2175	N. Beaver Tracts Individual	Cattle	06/01 - 10/16
2176	Q5 Antelope Flat Individual	Cattle	06/01 - 10/15
		Horses	06/01 - 10/15
2177	Hay Draw Individual	Cattle	06/01 - 10/15
2178	Miller Home Place Individual	Cattle	05/01 - 08/30
2179	Spence Place Individual	Cattle	05/01 - 05/31
2180	Irish Canyon Tract Individual	Cattle	05/06 - 07/05
2181	Fremont Butte Individual	Cattle	05/01 - 09/30
2182	S. Horse Creek Individual	Cattle	07/01 - 08/30
2183	Soda Lake Common	Cattle	07/01 - 09/15
		Horses	07/01 - 11/25
2184	Sandy Fenced Individual	Cattle	05/01 - 08/31
2185	Chain Lakes Individual	Cattle	05/16 - 06/15
2186	Muddy Corral Individual	Cattle	05/01 - 05/31
		Cattle	10/01 - 10/31
		Horses	06/01 - 09/30
2187	189 Muddy Meadow Individual	Cattle	05/01 - 10/30
2188	Fall Creek	Cattle	06/01 - 08/31

APPENDIX D-6 (Continued)

SEASON OF GRAZING USE AND KIND OF LIVESTOCK BY ALLOTMENT

Allotment Number	Allotment Name	Livestock Kind	Dates Of Use
2189	Horse Creek Bluff Individual	Cattle	05/16 - 06/15
2190	Steel Individual	Cattle	05/16 - 06/30
2191	Butte Individual	Cattle	05/01 - 05/15
2192	Big Sandy Individual	Cattle	07/01 - 11/30
2193	Merna Horse Creek Individual	Cattle	06/01 - 06/30
2194	LaBarge Unit Individual	Cattle	05/16 - 09/15
2195	South Piney Individual	Cattle	05/16 - 10/01
2196	Johnson Ridge Individual	Cattle	05/26 - 07/10
2197	Springman Creek Individual	Cattle	07/16 - 09/15
2198	Beaver Tract Individual	Cattle	05/16 - 09/15
2199	Horse Creek Road Individual	Cattle	10/01 - 12/15
2200	Cora Y Common	Cattle	05/25 - 06/14
2201	Upper N. LaBarge Individual	Cattle	05/15 - 09/30
2202	Viola Individual	Cattle	05/15 - 09/14
		Horses	06/01 - 09/14
2203	Ditch Individual	Horses	06/15 - 09/01
2204	Yose Individual	Cattle	05/26 - 06/30
2205	Rnd. Vly-Ryegrass Individual	Cattle	05/12 - 07/02
2206	Bird Individual	Cattle	05/20 - 06/19
2217	Cottonwood Gap Individual	Cattle	05/01 - 05/31
2220	Cora Road Individual	Cattle	06/01 - 06/15
2221	Cora Stock Driveway	Cattle	07/01 - 07/03
		Cattle	10/15 - 10/17
2222	Price-Beecher Creek	Cattle	06/01 - 06/30
2225	New Fork Tract Isolated	Cattle	05/16 - 09/15

APPENDIX D-7

ACRES AND AUMs BY LAND STATUS BY ALLOTMENT

APPENDIX D-7

ACRES AND AUMs BY LAND STATUS BY ALLOTMENT

		BLM		State		Private	
No.	Allotment Name	Acres	AUMs	Acres	AUMs	Acres	AUMs
2000	Daniel Ridge Individual	112	10	0	0	277	0
2002	40 Rod Common	3,557	542	18	0	4	4
2003	Homestead Individual	153	45	0	0	461	133
2004	Glascow Individual	115	24	0	0	1,320	163
2005	South LaBarge Common	100,309	10,076	7,549	1,205	7,086	843
2006	Round Valley Ryegrass Common	7,162	1,692	642	872	1,187	0
2007	Fayette Individual	1,388	270	0	0	32	6
2008	Stud Horse Common	14,175	2,173	1,280	213	0	0
2009	Fremont Butte Common	20,563	2,410	800	92	569	66
2010	Fontenelle Meadow Individual	14	56	0	0	0	0
2011	East Cora Road Individual	60	14	0	0	0	0
2012	East Cora Road Meadow	167	64	0	0	176	0
2013	Willow Lake Tracts	72	26	0	0	7	0
2014	Fish Hatchery Individual	305	56	396	0	697	0
2015	Antelope Flat Common	875	451	0	0	58	30
2016	State Section Individual	165	82	640	64	302	40
2017	Lower Pasture Individual	1,767	284	0	0	30	4
2018	Isolated Tracts Individual	509	3	0	0	2,661	0
2019	Heifer Pasture Individual	154	86	0	0	92	0
2020	Boulder Lake Common	5,567	835	0	0	346	26
2021	Boulder Creek Tracts	278	28	0	0	623	0
2022	East Fork Common	6,883	793	2,769	413	381	38
2024	Bousman Individual	5,150	755	0	0	71	0
2025	Red Canyon Common	5,758	994	616	121	349	155
2026	Desert Land Entry Individual	1,032	75	6	0	249	0
2027	Mickelson Bray Common	1,660	238	378	39	36	10
2028	Bench Corral Common Upper	14,071	2,009	636	34	74	10
2029	Ed Roe Pasture Common	391	81	0	0	0	0
2030	Horse Creek Individual	401	80	0	0	970	216
2031	Mesa Common	54,917	4,701	741	197	573	105
2032	D. Budd Deer Hill Individual	2,777	293	0	0	109	12
2033	Fish Creek Individual	1,722	150	0	0	12	0
2034	Adjacent to Ranch Individual	110	26	0	0	321	118
2035	Deer Hills Individual	5,291	698	81	10	20	0
2036	Dead Indian Dome Individual	2,060	411	0	0	128	50
2037	West Individual	2,392	525	471	16	2,754	571
2038	Buyer Horse Creek Individual	1,696	351	0	0	414	67
2039	Maki Creek Individual	640	135	12	0	12	0
2040	Desert Common	130,212	10,337	4,450	348	1,255	119
2041	Chapel Individual	4,755	257	464	55	852	50
2042	Cottonwood Meadows	278	236	0	0	523	800
2043	Pole Creek Individual	1,068	66	836	84	1,645	200
2044	Fremont Lake Individual	494	40	0	0	10	54
2045	Pasture Pole Creek Individual	35	54	0	0	4	0
2046	Fall Creek Pasture	35	10	0	0	16	10
2047	Circle 9 Individual	458	63	0	0	007	40
2048	Gilligan Individual	683	107	0	0	617	150
2049	Mount Airy Common	9,434	757	1	0	16	1
2050	Burch Individual	325	37	62	10	268	53

APPENDIX D-7 (Continued)

ACRES AND AUMs BY LAND STATUS BY ALLOTMENT

		BLM		State		Private	
No.	Allotment Name	Acres	AUMs	Acres	AUMs	Acres	AUMs
2051	Square Top Common	38,213	4,469	1,306	237	310	25
2052	Cowley Tract	75	10	4	0	12	0
2053	Clark-Bloom Common	744	262	0	0	27	2
2054	Cora Peak Individual	775	150	0	0	122	25
2055	Lauzer Marsh Creek Individual	668	166	0	0	246	130
2056	Three Island Individual	1,167	120	0	0	20	1
2057	Dack Individual	783	90	3	0	591	0
2058	Bloom Tracts	136	38	0	0	100	278
2059	Ryegrass Individual	1,938	242	0	0	114	5
2060	Ryegrass Isolated	57	18	0	83	946	42
2061	Eubank South Labarge Individual	1,814	80	626	65	647	58
2062	Bench Corral Individual	25,546	3,428	1,410	100	1,130	42
2063	Upper Muddy Individual	5,313	1,874	654	200	169	50
2064	Camp Creek Individual	3,372	715	0	0	2	67
2065	Beecher Individual	1,446	306	0	0	2,062	462
2066	School Section Individual	1,738	158	633	40	197	12
2067	Johnson Huhtah Individual	952	136	730	94	1,484	214
2068	Muleshoe Individual	6,907	683	16	0	76	11
2069	Warren Bridge Individual	254	48	0	0	23	253
2070	Horse Creek Pasture 1	80	74	0	0	0	222
2071	Horse Creek Pasture 2	3,352	240	4	5	912	55
2072	Spade Individual	4	688	0	0	1	944
2073	Reardon Canyon Common	20,241	1,121	1,305	120	419	106
2074	South Piney Ranch Individual	886	92	0	0	77	0
2075	LaBarge Creek Ranch Individual	885	42	0	0	56	0
2076	Fish Creek Individual	1,791	1,597	0	0	41	0
2077	North LaBarge Common	121,016	14,501	5,212	1,621	5,485	3,276
2078	Johnson Place Meadows	15	45	0	0	0	0
2079	South Piney Place Meadows	13	39	0	0	71	0
2080	Fox LaBarge Individual	342	17	0	0	378	25
2081	Fox-Yose Common	6,310	693	598	62	237	18
2082	East Fork River Tract	21	3	0	0	0	0
2083	Sagebrush Basin Individual	2,127	126	580	13	1,025	4
2084	Bench Corral Common Lower	23,172	2,635	991	120	128	19
2085	Upper Billies Individual	8,805	2,214	0	0	162	17
2086	Guio Sections Individual	2,505	417	633	51	5,618	1,200
2087	Upper Post Individual	295	123	0	0	2,592	0
2088	Horse Creek-Ryegrass	3,682	449	0	0	0	0
2089	Hansen Tract	175	14	0	0	461	32
2090	Rief Individual	185	66	59	26	303	0
2091	LaBarge Individual	2,255	337	1	0	530	84
2094	Hicks Pinedale Individual	84	14	0	26	154	0
2095	Muddy Creek Individual	1,644	113	6	0	175	1,194
2096	Hittle Individual	237	95	0	0	37	0
2097	Cottonwood Common	2,894	345	29	2	162	24
2098	McKinsey Individual	168	68	0	0	10	0
2099	Jory Individual	250	50	0	0	158	11
2100	Dry Piney Individual	594	30	22	0	1,142	0
2101	Webb Draw Pasture	2,023	556	0	0	828	209
2102	James Ryegrass	3,551	728	0	100	520	0
2103	Reservoir Past	416	81	0	0	23	0
2104	Long Pasture	783	352	2	0	794	414
2105	Todd Pasture	44	11	0	0	0	0
2106	Webb Home Pasture	264	5	0	0	1,720	5
2107	J&K Daniel Ridge	504	47	0	14	99	0
2108	Horse Creek Isolated Tract	140	35	0	0	10	0

APPENDIX D-7 (Continued)

ACRES AND AUMs BY LAND STATUS BY ALLOTMENT

		BLM		State		Private	
No.	Allotment Name	Acres	AUMs	Acres	AUMs	Acres	AUMs
2109	Individual Fenced	105	11	0	0	925	0
2110	Sandy Upper Muddy Individual	742	47	857	0	657	0
2111	Sandy Individual	128	14	0	0	49	0
2112	Muddy Meadows	45	20	0	0	127	0
2113	New Fork Individual	2,239	302	0	0	543	59
2114	Scattered Tracts	384	41	626	0	1,017	0
2115	North Pasture Individual	498	31	0	0	151	10
2116	Southwest Pasture Individual	435	59	0	0	809	30
2117	Boulter Pasture	25	7	0	0	264	0
2118	Jewett Ryegrass Individual	4,021	440	0	0	70	0
2119	Soaphole Common	7,557	1,352	16	0	658	497
2120	Piney Unit Fenced	141	19	0	0	2,114	0
2121	West Fremont Ridge Common	1,579	293	8	0	163	0
2122	Boulder Stock Driveway	446	96	0	0	16	0
2123	NW Square Top Individual	6,972	980	100	14	35	5
2124	Luman Individual	2,827	600	0	0	0	0
2125	Bondurant Individual	79	10	0	0	0	0
2126	Hay Gulch	814	75	0	0	0	0
2127	McNinch Deer Hill Individual	2,969	252	0	0	0	0
2128	Section I8 Individual	290	26	0	0	200	174
2129	West of Ranch Individual	1,183	130	0	0	560	130
2130	Star Corral Individual	480	62	0	0	214	51
2131	South Ridge Soaphole Common	1,044	97	0	0	259	57
2132	Marincic Mesa Individual	5,474	350	0	0	51	5
2133	Ball Horse Creek Individual	297	87	0	0	0	0
2134	Cranor Building Pasture	29	11	0	0	0	0
2135	Ball Individual	697	107	0	0	2,020	561
2136	East of DLE Individual	2,669	271	0	0	70	6
2137	Lower Red Canyon Individual	641	101	0	0	600	82
2138	Rathburn Individual	801	236	0	0	550	668
2139	Piney Individual	992	178	0	0	440	148
2140	Gilchrist DLE Individual	332	42	0	0	0	0
2141	Beaver Creek Individual	941	129	0	0	0	0
2142	Beaver Creek Meadow Individual	837	20	0	0	0	0
2143	Grindstone Soaphole	4,749	781	440	73	0	0
2144	Lower Horse Creek Individual	1,815	255	0	0	0	0
2145	Upper Horse Creek Individual	705	I09	0	0	635	70
2146	Home Individual	1,466	138	0	0	100	8
2147	Daniel "Y" Individual	1,047	107	0	0	474	47
2148	Daniel Ridge Individual	464	50	0	0	0	0
2149	Piney Individual	351	42	0	0	0	0
2150	Deer Hills Common	7,013	731	640	68	140	15
2151	Hoback Rim Individual	2,096	695	0	0	8,772	2,924
2152	Beaver Horse Creek Individual	2,014	584	0	0	635	216
2153	Scab Creek Individual	9,342	607	355	24	3,945	258
2154	Silver Creek Individual	69	65	0	0	757	380
2155	Piney Bridge Individual	1,407	131	640	55	160	14
2156	Hot Spring Individual	19	6	0	0	0	0
2157	Hot Spring Pasture Individual	35	26	0	0	0	0
2158	Canyon Ditch Individual	574	125	640	64	0	0
2159	Noble Tracts Individual[1]	343	44	640	100	0	0
2160	Noble Cora Peak Common	1,863	300	0	0	562	90
2161	Norris North Piney Individual	355	144	0	0	2,000	495
2162	5 Acre Pasture Individual	5	12	0	0	0	0
2163	O'Neil Individual	711	80	0	0	87	10
2164	West Cora Peak Individual	1,865	273	0	0	667	251

APPENDIX D-7 (Continued)

ACRES AND AUMs BY LAND STATUS BY ALLOTMENT

		BLM		State		Private	
No.	**Allotment Name**	**Acres**	**AUMs**	**Acres**	**AUMs**	**Acres**	**AUMs**
2165	Rosene Individual	141	42	0	0	1,200	120
2166	Pine Creek Individual	165	20	0	0	328	46
2167	Green River Unit Individual	104	40	0	0	105	23
2168	Chalk Butte Common	3,248	244	200	15	127	9
2169	North Hoback Rim Individual	1,893	113	0	0	0	0
2171	Brodie Draw Individual	2,493	435	0	0	2,603	379
2172	Price Horse Creek Individual	401	40	0	0	80	35
2173	Blue Rim Individual	37,442	3,258	2,240	199	2,120	188
2174	Q5 Soaphole	3,023	755	0	0	338	30
2175	North Beaver Tracts Individual	678	190	0	0	0	0
2176	Q5 Antelope Flat Individual	525	122	0	0	0	0
2177	Hay Draw Individual	189	77	0	0	0	0
2178	Miller Home Place Individual	90	24	0	0	0	0
2179	Spence Place Individual	96	8	0	0	0	0
2180	Irish Canyon Tract Individual	294	30	0	0	0	0
2181	Fremont Butte Individual	4,433	417	640	60	0	0
2182	South Horse Creek Individual	76	10	0	0	0	0
2183	Soda Lake Common	974	156	0	0	0	0
2184	Sandy Fenced Individual	474	30	0	0	1,200	2,916
2185	Chain Lakes Individual	831	265	0	0	9	1
2186	Muddy Corral Individual	947	170	160	29	490	89
2187	189 Muddy Meadow Individual	81	36	0	0	0	0
2188	Fall Creek	194	70	0	0	840	96
2189	Horse Creek Bluff Individual	103	12	0	0	0	0
2190	Steel Individual	1,256	182	0	0	9	2
2191	Butte Individual	119	0	619	0	0	0
2192	Big Sandy Individual	278	30	0	0	514	0
2193	Merna Horse Creek Individual	204	65	0	0	491	124
2194	LaBarge Unit Individual	814	140	617	124	618	10
2195	South Piney Individual	1,081	82	0	0	661	0
2196	Johnson Ridge Individual	1,857	165	0	0	90	0
2197	Springman Creek Individual	1,226	150	0	0	0	5
2198	Beaver Tract Individual	27	48	0	0	14	0
2199	Horse Creek Road Individual	26	43	0	0	12	0
2200	Cora Y Common	1,715	120	29	0	140	5
2201	Upper North Labarge Individual	17,686	1,985	739	96	110	28
2202	Viola Individual	802	81	0	0	1,579	145
2203	Ditch Individual	207	19	0	0	0	0
2204	Yose Individual	2,106	150	0	0	253	0
2205	Round Valley-Ryegrass Individual	9,732	1,616	208	31	641	0
2206	Bird Individual	297	14	9	27	291	11
2217	Cottonwood Gap Individual	31	155	0	0	15	0
2220	Cora Road Individual	208	82	0	0	16	5
2221	Cora Stock Driveway	2,251	754	20	0	119	23
2222	Price-Beecher Creek	190	50	0	0	942	145
2225	New Fork Tract Isolated[1]	5	8	0	0	897	0
Total		**909,593**	**107,907**	**49,877**	**6,952**	**127,739**	**24,129**

[1] New Fork Tract Isolated and Noble Tracts Individual originally one allotment. Split into two allotments in 1984.

APPENDIX D-8

STATUS OF ALLOTMENT MANAGEMENT PLANS

APPENDIX D-8

STATUS OF ALLOTMENT MANAGEMENT PLANS

Allotment Name & Number (All Section 3)	Grazing System	Number of Operators	Signed by DM (Date)	Pastures (Number)	Livestock (Kind)	Present Grazing Use (AUMs)	Acres		
							BLM	Other	Total
Bousman Individual 2024	Rest Rotation	1	05/04/73	4	Cattle	755	4,804	0	4,804
Budd Fish Creek 2033	Deferred Rotation	1	04/18/74	2	Cattle	150	1,650	50	1,700
D. Budd Deer Hills 2032	Deferred Rotation	1	10/21/68	2	Cattle	293	3,000	100	3,100
Desert 2040	Deferred Rotation	17	12/29/72[1]	4	Cattle & Sheep	9,337	128,778	5,440	134,218
40-Rod Common 2002	Rest Rotation	4	07/28/71	4	Cattle	325	3,587	0	3,587
Fox-Yose Common 2081	Rest Rotation	2	06/01/71	2	Cattle	1,044	7,170	800	7,970
James Ryegrass Common	Rest Rotation	2	05/25/73 (rev.)	3	Cattle	728	43,520	160	2,680
Mrak's Fremont Butte 2181	[2]	1	06/23/72	1	Cattle	417	4,385	640	5,025
North LaBarge Common 2077	Rest Rotation	9	11/09/68	8	Cattle	14,500	154,800	59,943	214,743
Round Valley Ryegrass Common 2006	Deferred Rotation	3	03/09/69	2	Cattle	1,692	7,465	1,280	8,745
Wardell Upper N. LaBarge Creek 2201	Rest Rotation	1	03/29/71	3	Cattle	1,985	15,690	1,980	17,670

[1] Original AMP dated 5/20/68. Plan amended in 1980.

[2] Operator has other spring grazing and rotates use of this allotment, resting it every third year.

Firm Requests for AMP: Budd Ranches-Deer Hills (AMP and EAR completed. Not implemented pending completion of EIS. 10,672 acres federal range; 3,356 acres other range.)

APPENDIX D-9

AUMs, AVERAGE 5-YEAR USE, AND NUMBER OF PERMITTEES BY ALLOTMENT

APPENDIX D-9

AUMs, AVERAGE 5-YEAR USE, AND NUMBER OF PERMITTEES BY ALLOTMENT

Number	Allotment Name	Adjudicated AUMs	Suspended Nonuse	5-Year Average Use	Number of Permittees in Allotment
2000	Daniel Ridge Individual	10	0	10	1
2002	40 Rod Common	542	636	466	3
2003	Homestead Individual	45	0	45	1
2004	Glascow Individual	24	0	24	1
2005	South LaBarge Common	10,076	3,937	8,696	11
2006	Round Vly. Ryegrass Common	1,692	0	1,547	3
2007	Fayette Individual	270	0	108	1
2008	Stud Horse Common	2,173	719	1,627	3
2009	Fremont Butte Common	2,410	948	1,977	5
2010	Fontenelle Mdw. Individual	56	0	53	1
2011	East Cora Road Individual	14	0	14	1
2012	East Cora Road Meadow	64	0	64	1
2013	Willow Lake Tracts	26	0	26	1
2014	Fish Hatchery Individual	56	0	56	1
2015	Antelope Flat Common	451	131	451	2
2016	State Section Individual	82	36	82	1
2017	Lower Pasture Individual	284	0	167	1
2018	Isolated Tracts Individual	83	0	38	1
2019	Heifer Pasture Individual	86	0	49	1
2020	Boulder Lake Common	835	0	573	4
2021	Boulder Creek Tracts	28	0	28	1
2022	East Fork Common	793	180	754	2
2024	Bousman Individual	755	0	425	1
2025	Red Canyon Common	994	310	991	2
2026	Desert Land Entry Individual	75	86	75	1
2027	Mickelson Bray Common	238	43	237	3
2028	Upper Bench Corral	2,009	1,999	1,646	3
2029	Ed Roe Pasture Common	81	0	71	2
2030	Horse Creek Individual	80	0	80	1
2031	Mesa Common	4,701	4,214	3,812	21
2032	D. Budd Deer Hill Individual	293	147	293	1
2033	Fish Creek Individual	150	0	150	1
2034	Adjacent to Ranch Individual	26	0	26	1
2035	Deer Hills Individual	698	232	698	1
2036	Dead Indian Dome Individual	411	0	410	1
2037	West Individual	525	0	525	1
2038	Buyer Horse Creek Individual	351	0	351	1
2039	Maki Creek Individual	135	0	135	1
2040	Desert Common	9,337	8,606	5,124	17
2041	Chapel Individual	257	235	238	1
2042	Cottonwood Meadows	236	0	189	1
2043	Pole Creek Individual	66	0	64	1
2044	Fremont Lake Individual	40	0	40	1
2045	Pasture Pole Creek Individual	54	0	54	1

APPENDIX D-9

APPENDIX D-9 (Continued)

AUMs, AVERAGE 5-YEAR USE, AND NUMBER OF PERMITTEES BY ALLOTMENT

Number	Allotment Name	Adjudicated AUMs	Suspended Nonuse	5-Year Average Use	Number of Permittees in Allotment
2046	Fall Creek Pasture	10	0	10	1
2047	Circle 9 Individual	63	25	37	1
2048	Gilligan Individual	107	23	80	1
2049	Mount Airy Common	757	1,033	611	4
2050	Burch Individual	37	0	37	1
2051	Square Top Common	4,469	1,450	4,097	8
2052	Cowley Tract	10	4	10	1
2053	Clark-Bloom Common	262	117	170	2
2054	Cora Peak Individual	150	0	150	1
2055	Lauzer Marsh Cr. Individual	166	0	166	1
2056	Three Island Individual	120	0	72	1
2057	Dack Individual	90	0	72	1
2058	Bloom Tracts	38	0	0	0
2059	Ryegrass Individual	242	197	242	1
2060	Ryegrass Isolated	18	18	18	1
2061	Eubank S. Labarge Individual	80	0	80	1
2062	Bench Corral Individual	3,428	3,423	2,955	1
2063	Upper Muddy Individual	1,874	0	1,872	1
2064	Camp Creek Individual	715	0	713	1
2065	Beecher Individual	306	0	306	1
2066	School Section Individual	158	204	158	1
2067	Johnson Huhtah Individual	136	119	136	1
2068	Muleshoe Individual	683	807	624	1
2069	Warren Bridge Individual	48	0	48	1
2070	Horse Creek Pasture 1	74	0	74	1
2071	Horse Creek Pasture 2	240	460	240	1
2072	Spade Individual	688	0	548	1
2073	Reardon Canyon Common	1,121	993	625	2
2074	S. Piney Ranch Individual	92	0	92	1
2075	LaBarge Cr. Ranch Individual	42	0	42	1
2076	Fish Creek Individual	1,597	0	389	1
2077	N. LaBarge Common	14,501	10,044	9,635	8
2078	Johnson Place Meadows	45	0	45	1
2079	S. Piney Place Meadows	39	0	39	1
2080	Fox LaBarge Individual	17	0	17	1
2081	Fox-Yose Common	693	459	605	2
2082	East Fork River Tract	3	0	3	1
2083	Sagebrush Basin Individual	126	0	124	1
2084	Lower Bench Corral Common	2,635	2,635	1,146	2
2085	Upper Billies Individual	2,214	1,048	1,688	1
2086	Guio Sections Individual	417	0	373	1
2087	Upper Post Individual	123	0	124	1
2088	Horse Creek-Ryegrass	449	367	358	1
2089	Hansen Tract	14	0	14	1
2090	Rief Individual	66	0	66	1
2091	LaBarge Individual	337	161	593[1]	1
2094	Hicks Pinedale Individual	14	0	14	1
2095	Muddy Creek Individual	113	207	113	1
2096	Hittle Individual	95	10	94	1
2097	Cottonwood Common	345	42	344	2
2098	McKinsey Individual	50	0	6	1
2099	Jory Individual	50	0	50	1
2100	Dry Piney Individual	30	0	30	1
2101	Webb Draw Pasture	556	0	546	2

APPENDIX D-9 (Continued)

AUMs, AVERAGE 5-YEAR USE, AND NUMBER OF PERMITTEES BY ALLOTMENT

Number	Allotment Name	Adjudicated AUMs	Suspended Nonuse	5-Year Average Use	Number of Permittees in Allotment
2102	James Ryegrass	728	136	333	1
2103	Reservoir Past	81	0	81	1
2104	Long Pasture	352	0	352	1
2105	Todd Pasture	11	0	6	1
2106	Webb Home Pasture	5	0	5	1
2107	J&K Daniel Ridge	47	0	23	1
2108	Horse Creek Isolated Tract	35	0	35	1
2109	Individual Fenced	11	7	11	1
2110	Sandy Upper Muddy Individual	39	0	39	1
2111	Sandy Individual	14	0	14	1
2112	Muddy Meadows	20	0	20	1
2113	New Fork Individual	302	0	302	1
2114	Scattered Tracts	41	0	41	1
2115	North Pasture Individual	31	6	32	1
2116	Southwest Pasture Individual	59	16	59	1
2117	Boulter Pasture	7	0	7	1
2118	Jewett Ryegrass Individual	440	357	301	1
2119	Soaphole Common	1,352	0	634	3
2120	Piney Unit Fenced	19	0	19	1
2121	W. Fremont Ridge Common	293	0	164	3
2122	Boulder Stock Driveway	55	0	44	1
2123	NW Square Top Individual	980	325	551	1
2124	Luman Individual	600	0	198	1
2125	Bondurant Individual	10	0	10	1
2126	Hay Gulch	75	0	75	1
2127	McNinch Deer Hill Individual	252	126	130	1
2128	Section 18 Individual	26	0	10	1
2129	West of Ranch Individual	130	0	57	1
2130	Star Corral Individual	62	62	25	1
2131	S. Ridge Soaphole Common	97	0	97	2
2132	Marincic Mesa Individual	350	324	340	1
2133	Ball Horse Creek Individual	87	0	87	1
2134	Cranor Building Pasture	11	0	11	1
2135	Ball Individual	107	0	106	1
2136	East of DLE Individual	271	268	256	1
2137	Lower Red Canyon Individual	101	0	99	1
2138	Rathburn Individual	236	0	183	1
2139	Piney Individual	178	87	177	1
2140	Gilchrist DLE Individual	42	0	30	1
2141	Beaver Creek Individual	129	0	129	1
2142	Beaver Cr. Meadow Individual	20	0	20	1
2143	Grindstone Soaphole	781	0	781	1
2144	Lower Horse Creek Individual	255	0	255	1
2145	Upper Horse Creek Individual	109	0	109	1
2146	Home Individual	138	102	110	1
2147	Daniel "Y" Individual	107	0	107	1
2148	Daniel Ridge Individual	50	0	50	1
2149	Piney Individual	42	0	42	1
2150	Deer Hills Common	731	1,233	410	3
2151	Hoback Rim Individual	695	0	695	1
2152	Beaver Horse Cr. Individual	584	0	584	1
2153	Scab Creek Individual	607	0	607	1
2154	Silver Creek Individual	65	0	65	1
2155	Piney Bridge Individual	131	127	131	1

APPENDIX D-9 (Continued)

AUMs, AVERAGE 5-YEAR USE, AND NUMBER OF PERMITTEES BY ALLOTMENT

Number	Allotment Name	Adjudicated AUMs	Suspended Nonuse	5-Year Average Use	Number of Permittees in Allotment
2156	Hot Spring Individual	6	0	6	1
2157	Hot Spring Pasture Individual	26	0	26	1
2158	Canyon Ditch Individual	125	0	125	1
2159	Noble Tracts Individual[2]	36	0	44[2]	1
2160	Noble Cora Peak Common	300	0	193	2
2161	Norris N. Piney Individual	144	0	144	1
2162	5 Acre Pasture Individual	12	0	12	1
2163	O'Neil Individual	80	89	80	1
2164	West Cora Peak Individual	273	0	273	1
2165	Rosene Individual	42	0	42	1
2166	Pine Creek Individual	20	0	20	1
2167	Green River Unit Individual	40	0	40	1
2168	Chalk Butte Common	244	86	243	3
2169	N. Hoback Rim Individual	113	0	113	1
2171	Brodie Draw Individual	385	0	313	1
2172	Price Horse Cr. Individual	40	0	16	1
2173	Blue Rim Individual	3,258	2,818	2,316	1
2174	Q5 Soaphole	755	0	602	1
2175	N. Beaver Tracts Individual	190	0	190	1
2176	Q5 Antelope Flat Individual	122	0	122	1
2177	Hay Draw Individual	77	0	77	1
2178	Miller Home Place Individual	24	0	24	1
2179	Spence Place Individual	8	0	8	1
2180	Irish Canyon Tract Individual	30	0	30	1
2181	Fremont Butte Individual	417	162	166	1
2182	S. Horse Creek Individual	10	0	10	1
2183	Soda Lake Common	156	0	156	2
2184	Sandy Fenced Individual	30	0	30	1
2185	Chain Lakes Individual	265	0	265	1
2186	Muddy Corral Individual	170	0	170	1
2187	189 Muddy Meadow Individual	36	0	36	1
2188	Fall Creek	70	0	60	1
2189	Horse Creek Bluff Individual	12	0	12	1
2190	Steel Individual	182	0	181	1
2191	Butte Individual	7	0	7	1
2192	Big Sandy Individual	30	7	30	1
2193	Merna Horse Cr. Individual	65	0	65	1
2194	LaBarge Unit Individual	140	0	140	1
2195	South Piney Individual	82	23	82	1
2196	Johnson Ridge Individual	165	23	165	1
2197	Springman Creek Individual	150	0	150	1
2198	Beaver Tract Individual	48	0	48	1
2199	Horse Creek Road Individual	43	0	43	1
2200	Cora Y Common	120	42	120	1
2201	Upper N. LaBarge Individual	1,985	1,379	1,683	1
2202	Viola Individual	81	0	79	1
2203	Ditch Individual	19	0	18	1

APPENDIX D-9 (Continued)

AUMs, AVERAGE 5-YEAR USE, AND NUMBER OF PERMITTEES BY ALLOTMENT

Number	Allotment Name	Adjudicated AUMs	Suspended Nonuse	5-Year Average Use	Number of Permittees in Allotment
2204	Yose Individual	150	104	149	1
2205	Rnd Vly-Ryegrass Individual	1,616	0	1,270	1
2206	Bird Individual	14	0	14	1
2217	Cottonwood Gap Individual	155	0	155	1
2220	Cora Road Individual	82	0	82	1
2221	Cora Stock Driveway	0	0	754	1
2222	Price-Beecher Creek	50	0	50	1
2225	New Fork Tract Isolated[2]	8	0	8[2]	1

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[1] Additional AUMs are licensed on a nonrenewable basis according to a Memorandum of Understanding dated March 19, 1979.

[2] New Fork Tract Isolated and Noble Tracts Individual originally were one allotment. Split into two allotments in l984.

APPENDIX D-10

ALLOTMENTS PROPOSED FOR IMPROVE CATEGORY

APPENDIX D-10

ALLOTMENTS PROPOSED FOR IMPROVE CATEGORY

Number	Allotment Name	Reason
2062	Bench Corral Common	The meadows are showing signs of heavy use with silver sagebrush and big sagebrush invading. The allotment has a distribution problem, but more water would help improve this problem. The area is experiencing some erosion and headcutting problems.
2173	Blue Rim Individual	The allotment is being split into two parts due to the highway department fencing the highway right-of-way. The area north of the highway has had a history of light use due to the lack of water developments in the area. Since the highway has been fenced, the area just north of the highway is being cut off from waters that are on the south side. Distribution is the biggest problem in the allotment.
2171	Brodie Draw Individual	The meadows in the allotment are showing signs of deterioration due to the invasion of silver sagebrush. The allotment also has distribution problems, especially in the northwest part, due to the lack of water developments. The old sagebrush spray has been reinvaded with sagebrush and this needs to be addressed.
2053	Clark-Bloom Common	The allotment has some large distribution problems due to water locations and the industrial park which is located in the center of the allotment.
2200	Cora Y Common	The range condition in the allotment appears to be in a fair class. The allotment needs to be looked at for distribution problems as well as the low range condition.
2134	Cranor Building Pasture	The riparian area in this allotment is receiving extremely heavy use. The allotment is only 40 acres and is used along with private land. Condition of the riparian area is of prime concern.
2032	Deer Hills Individual	The largest problem is the high erosion problem. This was to be addressed in the AMP, but no progress has been made. Some distribution problems exist due to the lack of water developments and reservoirs that are silted in.

APPENDIX D-10 (Continued)
ALLOTMENTS PROPOSED FOR IMPROVE CATEGORY

Number	Allotment Name	Reason
2035	Deer Hills Individual	The allotment is a low forage producer and could use some brush control. The permittee is willing to invest in improvements.
2036	Dead Indian Dome Individual	The allotment has potential for brush control. Sagebrush is a problem because of its density. The control of brush may be a problem due to deer winter range considerations.
2150	Deer Hills Common	The range condition in the allotment appears to be a low-fair class. The allotment also has distribution problems due to the lack of water in some areas. The allotment receives extremely heavy use.
2136	East of DLE	The allotment is in poor condition. It may be due to the soils in the area not having a potential for being very productive. The area of the Gilchrist DLE has been fenced in with the East of DLE and needs to be addressed.
2007	Fayette Individual	The allotment has a distribution problem due to the lack of water in the central part. The allotment is in a low-fair to poor range condition and this needs to be addressed.
2076	Fish Creek Individual	The allotment needs water developed on the north end. The permittee stated the allotment is adjudicated at a much higher stocking rate than it can ever carry.
2002	40-Rod Common	The allotment has a distribution problem in the South Pasture due to the lack of water. The AUMs allocated are above the range survey stocking rate. The AUMs were covered by a brush spray, but the brush has now reinvaded.
2140	Gilchrist DLE Individual	The allotment is basically a part of the East of DLE allotment and should be added to that allotment and addressed there.
2144	Lower Horse Creek Individual	The allotment is in a poor to fair condition. The area is receiving extremely heavy use.
2071	Horse Creek Pasture No. 2	The allotment is in a low-fair condition and is in a very low productivity state. The area needs to be monitored to establish what is causing the problem.
2156	Hot Springs Individual	The range condition on this small allotment is in the poor class. The allotment is used in conjunction with private land.

APPENDIX D-10 (Continued)

ALLOTMENTS PROPOSED FOR IMPROVE CATEGORY

Number	Allotment Name	Reason
2157	Hot Springs Pasture	The allotment is in poor condition, and a small portion is being hayed.
2102	James Ryegrass	A distribution problem exists in two pastures on the AMP. The area has high potential if brush control is done. Range studies indicate the allotment is in a static trend.
2196	Johnson Ridge Individual	The allotment is in fair condition with the biggest problem being livestock distribution due to the lack of water in the south part of the allotment. The allotment has potential for brush control.
2194	LaBarge Unit Individual	The area is used along with the private land. The south end of the allotment needs water developments to get use in that area. The area also has potential for brush control.
2084	Lower Bench Corral Common	The biggest problem in the allotment is livestock distribution. The cattle always move to the west part of the allotment and will not make good use in the east part of the allotment. Some of the problem is due to the lack of water in the east end, but mostly due to how the cattle are moved through the area.
2132	Marincic Mesa Individual	The area is in a high, fair condition. The problem with the allotment is the distribution across the allotment. Water is needed in the north end. The permittee has requested an AMP and brush control to help in distributing the cattle.
2127	McNinch Deer Hills Individual	The allotment is in poor to fair condition. The area needs a water development in the southwestern part. The area is also experiencing some erosion problems.
2027	Mickelson Bray Common	The allotment receives extremely heavy use on the meadows along the creek. The northwest corner of the allotment needs a water development. The allotment needs to be monitored in the meadows to determine the direction of the trend.
2049	Mount Airy Common	The allotment needs a water development to help distribution. The old sprays need to be resprayed. This allotment contains a critical winter range for deer. Erosion problems are present in this allotment.

APPENDIX D-10 (Continued)

ALLOTMENTS PROPOSED FOR IMPROVE CATEGORY

Number	Allotment Name	Reason
2095	Muddy Creek Individual	The allotment is in fair condition with the area receiving heavy use. The area needs to be monitored to determine the actual trend.
2077	North LaBarge Common	The allotment is under an AMP. The eastern portion is critical deer winter range. A considerable amount of acreage has been taken out of production due to the oil and gas industry. The area also has considerable amount of erosion problems. The use patterns of the summer pastures need to be addressed. Distribution problems exist in part of the area. Wild horses are also a problem.
2115	North Pasture Individual	The range condition in the allotment is poor to low-fair. The area needs to be monitored to determine the problem.
2174	Q5 Soaphole	The allotment suffers a livestock distribution problem due to a lack of water. Range condition varies along with the use pattern from fair to good.
2073	Reardon Canyon Common	The range condition varies from fair to good. The area needs several water developments to help livestock distribution. The largest problem is severe soil erosion.
2006	Round Valley Ryegrass Common	The allotment is in good condition. The largest problem is how the allotment is being used. One permittee turns into the west pasture with his herd and the other permittee turns into the east pasture. Once the east pasture is grazed down, the permittee calls the other permittee to have him move all of his cattle out of the west pasture so he can move his herd in. The permittee that begins in the west does not get his full use.
2119	Soaphole Common	The allotment has never been adjusted after all the DLE acreage was taken out of the allotment. An AUM adjustment is needed to get the permits in balance with the available forage.
2005	South LaBarge Common	The biggest problem in this large allotment is livestock distribution due to the lack of range improvements to control livestock. The range condition varies from poor to good depending on the use pattern. The area is subject to erosion problems and is critical deer and elk winter range.

APPENDIX D-10 (Continued)

ALLOTMENTS PROPOSED FOR IMPROVE CATEGORY

Number	Allotment Name	Reason
2051	Square Top Common	The allotment needs water developed in the northwest portion. The allotment receives heavy use in the southeast corner due to season long use by horses. The area receives early spring use and needs management to help maintain its condition.
2056	Three Island Individual	The allotment is in good condition but needs brush control. The permittee is convinced the allotment is under-allocated.
2028	Upper Bench Corral Common	The problem in the allotment is livestock distribution. All permittees are in agreement. The range condition is fair to high-good.
2201	Upper North LaBarge Individual	The area has erosion problems. Range condition is variable depending on use pattern. The area needs water developments for better distribution. The AMP needs to be rewritten to better manage the area. The allotment varies in elevation and some of the high country is used too early.
2129	West of Ranch Individual	Range condition is in the poor class. The area has high erosion problems.

APPENDIX E

SILVICULTURAL, HARVESTING, AND ENVIRONMENTAL GUIDELINES

Regeneration in harvest units and burned areas must provide elk hiding cover or achieve preharvest stocking levels (numbers of trees per acre) with 12- to 15-foot tall trees before timber harvesting would be allowed in adjacent stands. Exceptions would be allowed for emergency salvage of insect/disease infested and weather or fire-damaged timber.

Roads would be constructed to the minimum standard necessary to safely remove timber. However, where such roads would be needed for other public purposes, a higher road standard would be used. Spur roads would be closed, either administratively or physically, once harvesting and associated activities are completed.

Slash disposal would be tailored to the individual harvest unit to promote reforestation, minimize erosion, and allow big game movement. Methods that would be employed include broadcast burning, piling and burning, lopping and scattering, chipping, and roller chopping.

Timber harvesting practices would be consistent with accepted silvicultural guidelines for each species but would also reflect individual stand conditions and environmental or other resource concerns.

Two timber harvest restrictions described in the alternatives, the riparian buffer and the slope restriction, are less restrictive than the standard surface-disturbing stipulations because logging activities create a lower level of surface disturbance than for example well pad or road construction. Specifically, logging activity, other than road construction, does not involve complete vegetation removal; it does not involve large-scale earth movement; it does not have the potential to discharge large amounts of hydrocarbons or similar pollutants in to water courses; and it leaves tree stumps and varying amounts of logging debris (slash) in place to retard soil movement. Further, logging equipment is available that is designed to operate on steeper slopes or adjacent to riparian areas with minimal disturbance.

APPENDIX F

CULTURAL RESOURCES PROCESS

1. The BLM may require a cultural survey of a proposed project area. The survey is conducted by either BLM personnel or an outside contractor. A survey report is produced and copies provided to BLM and the State Historic Preservation Officer (SHPO). The BLM uses the report as a basis for Natural Register evaluations of sites located, determining the effect of the project on any significant resources, and the need to mitigate any impacts to significant resources.

2. The BLM specialist or cultural resource contractor plans the survey project, conducts background research on the project area, reviews regional overviews and other documents for pertinent previous research and terrain and field conditions in the project area. Before beginning fieldwork, the contractor conducts a site file search at the SHPO records office, and if necessary, at the local BLM office.

2A. If the file search reveals that the project area has been adequately surveyed, or if the project area is one of demonstrably low site potential, a resurvey may not be warranted. The responsibility for determining the need for a survey rests with the BLM in consultation with the SHPO.

2B. The results of the file search are documented in a report that should contain a complete bibliographic reference of the previous surveys and summary of previous sites located.

3. The BLM or contractor conducts the field survey of the project area. If standard inventory requirements would not apply, the overall field methodology, including survey intensity and aerial limits, would be determined by the BLM in consultation with the SHPO.

3A. If no sites are discovered during the survey, and if no previously recorded sites are located in the survey area, the negative results of the survey are documented in a Class III report. Cultural resource clearance is obtained and the project proceeds, subject to other resource considerations, as applicable.

3B. If sites are discovered during the survey, or if previously recorded sites are located in the survey area, Steps 4 through 9 are followed.

4. Each site located is recorded on an Inter-Mountain Antiquities Computer System (IMACS) site form.

5. Each new site and each previously recorded site is evaluated for National Register eligibility. Limited testing should be conducted as necessary.

6 & 6A. If a site is not eligible for the National Register, no further work (i.e., testing, monitoring, excavation, or avoidance) is usually required. If the site contains information significant enough to warrant further work, the site should be evaluated as eligible (see Step 7). The evaluation of noneligibility is documented and a recommendation of "no further work" is made in the report.

7 & 7A. If a site is evaluated as eligible for the National Register, the reasons for its eligibility must be documented, with a detailed description of how the site meets the Criteria of Eligibility (36 CFR 60.6). If a site is eligible because of its research potential or information content (36 CFR 60.6(d)) the report must document and discuss the site information content in terms of pertinent research questions which may be addressed.

8. The effect of the project on each eligible site is evaluated and documented. "Effect" is determined by applying the criteria in 36 CFR 800.3.

8A1 & 8A2. If there will be no effect, or if the effect is not adverse, no further work at the site is warranted. This is documented in the Class III report (see Step 9).

8B1. If the impacts to the site will result in adverse effects, this is also documented in the Class III report (see Step 9).

8B2. Recommendations to mitigate adverse effects should be directed at reducing or eliminating impacts to those qualities which make the site eligible for the National Register. Avoidance or in situ preservation are the preferred options. Data recovery is

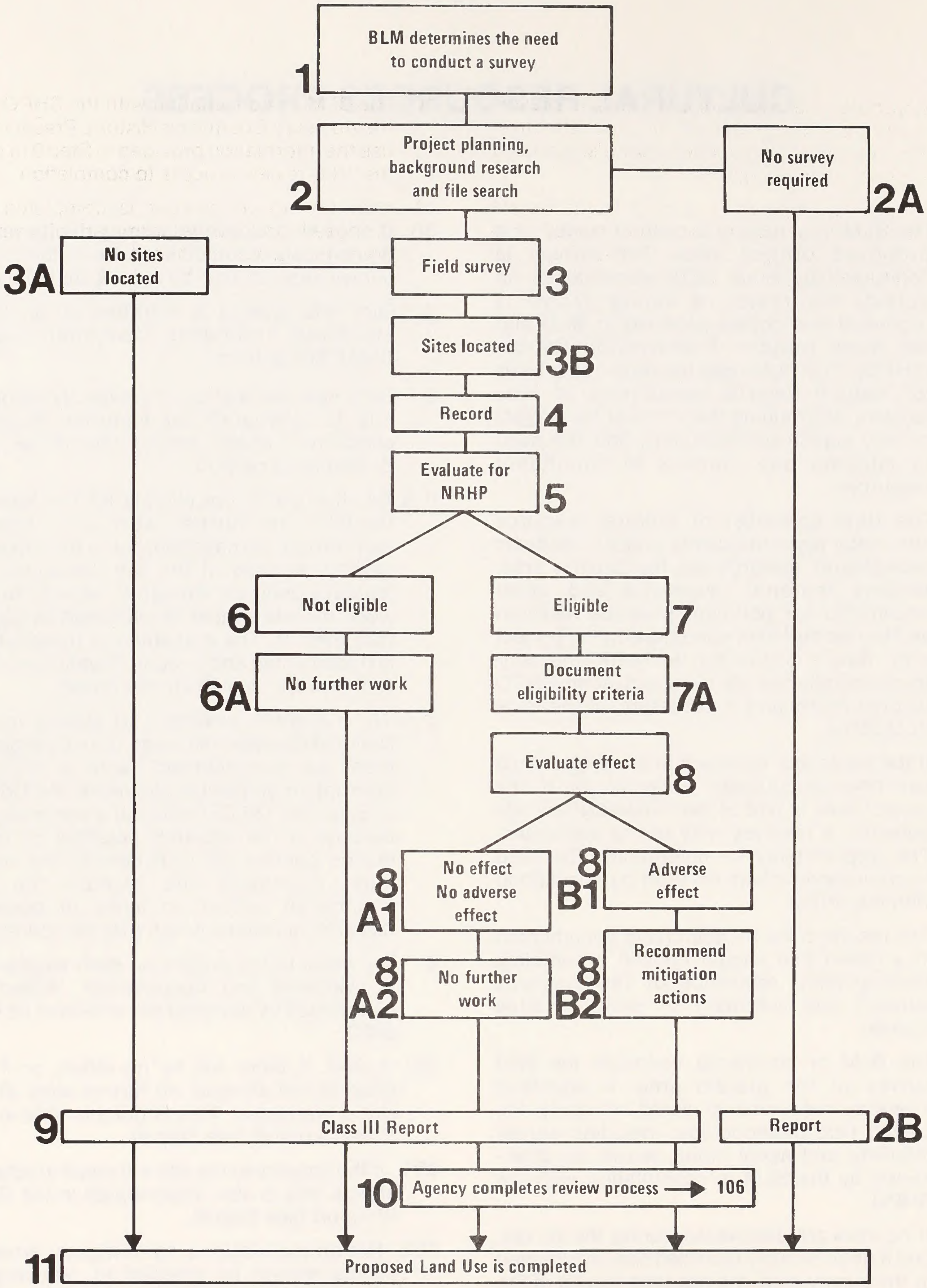
1
BLM determines the need to conduct a survey
2
Project planning, background research and file search
2A
No survey required
3A
No sites located
3
Field survey
3B
Sites located
4
Record
5
Evaluate for NRHP
6
Not eligible
6A
No further work
7
Eligible
7A
Document eligibility criteria
8
Evaluate effect
8A1
No effect No adverse effect
8B1
Adverse effect
8A2
No further work
8B2
Recommend mitigation actions
9
Class III Report
2B
Report
10
Agency completes review process → 106
11
Proposed Land Use is completed

Figure 13
CULTURAL RESOURCES PROCESS

appropriate if avoidance or in situ preservation are not feasible or cost effective. Monitoring of construction may also be used under certain conditions.

9. A report is prepared documenting the results of Steps 1 through 8A2 and(or) 8B2 and copies of the report submitted to the BLM, the SHPO, and the applicant/land user.
10. The BLM, in consultation with the SHPO, and the Advisory Council on Historic Preservation use the information provided in Step 9 to carry the "106"review process to completion.
11. After the above process is completed, the proposed land use is permitted with appropriate resource stipulations.

APPENDIX G-1

DISPOSAL CRITERIA

Lands to be considered for disposal, as a minimum, meet the following criteria: they are difficult and uneconomical to manage, and(or) they are acquired for a specific purpose, or their disposal would meet important public objectives such as community expansion or economic development.

In addition, these lands would have the following characteristics:

They contain no significant wildlife, recreation, or other resource values, have no overriding public values, and represent no substantial public investments;

They are suitable for agricultural, industrial, commercial, or residential development;

Their disposal would best serve the public interest; and

Lands identified for disposal would be considered for exchange with federal, state, or local government or other entities.

APPENDIX G-2

PROPOSED DISPOSAL, EXCHANGE, AND ACQUISITION PARCELS

APPENDIX G-2

PROPOSED DISPOSAL, EXCHANGE, AND ACQUISITION PARCELS

Legal Description	Acres
Disposal Parcels	
1. T. 37 N., R. 110 W.	
sec. 1, Lots 1, 2, 3, 4	33.52
sec. 2, Lots 1, 2, 3, 4	33.00
sec. 3, Lots 1, 2, 3, 4	32.84
Total	**99.36**
2. T. 37 N., R. 111 W.	
sec. 13, W½W½	160.00
3. T. 36 N., R. 112 W.	
sec. 2, Lot 2	37.20
4. T. 36 N., R. 110 W.	
sec. 9, S½SE¼	80.00
5. T. 36 N., R. 110 W.	
sec. 20, SE¼SW¼	40.00
6. T. 36 N., R. 110 W.	
sec. 21, NW¼SE¼	40.00
sec. 21, Lot 3	2.52
sec. 21, Lot 4	2.52
sec. 21, Lot 6	2.51
sec. 21, Lot 7	2.51
sec. 21, Lot 14	2.50
Total	**52.56**
7. T. 35 N., R. 109 W.	
sec. 19, Lot 2 (Willow Lake for exchange only)	37.08
8. T. 35 N., R. 109 W.	
sec. 19, N½SE¼ (Willow Lake for exchange only)	80.00
9. T. 33 N., R. 108 W.	
sec. 9, NW¼NW¼	40.00
10. T. 33 N., R. 108 W.	
sec. 10, SW¼SW¼	40.00
sec. 15, W½NW¼	75.04
Total	**115.04**
11. T. 33 N., R. 108 W.	
sec. 25, SW¼SW¼	40.00
12. T. 33 N., R. 107 W.	
sec. 31, Lot 1	40.26
13. T. 33 N., R. 108 W.	
sec. 35, SE¼NE¼, SE¼	200.00
T. 32 N., R. 108 W.	
sec. 3, Lot 3	35.31
Total	**235.31**

APPENDIX G-2 (Continued)

PROPOSED DISPOSAL, EXCHANGE, AND ACQUISITION PARCELS

Legal Description	Acres
14. T. 32 N., R. 107 W.	
sec. 1, Lots 10, 11, W½SW¼	153.27
sec. 2, Lots 3, 4, SW¼NE¼	115.27
Total	**268.54**
15. T. 32 N., R. 107 W.	
sec. 12, Lot 4, SE¼SW¼, SW¼SE¼	74.58
sec. 13, Lots 1, 2, 3. 4. NW¼NE¼	178.52
T. 32 N., R. 106 W.	
sec. 18, Lot 3	35.44
Total	**288.54**
16. T. 32 N., R. 106 W.	
sec. 29, Lots 4, 6, 7, E½SW¼	207.13
sec. 32, NE¼NW¼	40.00
Total	**247.13**
17. T. 31 N., R. 106 W.	
sec. 18, Lots 1, 2, 3, SW¼NE¼, SE¼NW¼, E½SW¼, SE¼	431.00
T. 31 N., R. 107 W.	
sec. 12, SE¼NE¼, SE¼SW¼, S½SE¼	160.00
sec. 13, N½NE¼, SE¼NE¼	120.00
Total	**711.00**
18. T. 31 N., R. 106 W.	
sec. 8, NE¼SW¼	40.00
19. T. 31 N., R. 106 W.	
sec. 17, N½NE¼	80.00
20. T. 31 N., R. 106 W.	
sec. 30, W½NE¼	80.00
21. T. 30 N., R. 106 W.	
sec. 9, SE¼NW¼	40.00
22. T. 31 N., R. 108 W.	
sec. 25, S½SW¼	80.00
23. T. 32 N., R. 110 W.	
sec. 5, SW¼SE¼	40.00
24. T. 31 N., R. 110 W.	
sec. 17, NE¼NW¼	40.00
25. T. 31 N., R. 110 W.	
sec. 17, E½SE¼	80.00
26. & 27. Tracts Listed Below:	
T. 29 N., R. 111 W., Sections 17 & 18	
Tract 37	2.50
Tract 38	3.00
Tract 39	2.29
Tract 40	2.19
Tract 41	2.50
Tract 42	1.51
Tract 45	2.50
Tract 46	1.10
Tract 47	1.40
Tract 48	2.50
Tract 49	2.50
Tract 50	2.90
Tract 51	2.50
Tract 52	2.50

APPENDIX G-2 (Continued)

PROPOSED DISPOSAL, EXCHANGE, AND ACQUISITION PARCELS

Legal Description	Acres
26. & 27. Tracts Listed Below:	
T. 29 N., R. 111 W., Sections 17 & 18	
Tract 54	2.50
Tract 55	2.50
Tract 56	2.50
Tract 57	2.50
Tract 58	2.10
Total	**43.99**
28. T. 29 N., R. 111 W.	
sec. 17, SE¼SW¼ - Dropped - Contiguous	
29. T. 26 N., R. 112 W. (Map Revised)	
sec. 6, Lots 3, 5, 9, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29	102.58
30. T. 26 N., R. 112 W.	
sec. 7, Lot 5	19.57
31. T. 26 N., R. 113 W.	
sec. 14, Lot 4, SW¼SE¼	71.15
32. T. 27 N., R. 115 W.	
sec. 7, E½SE¼	80.00
33. T. 29 N., R. 114 W.	
sec. 25, SE¼SW¼	40.00
34. T. 29 N., R. 113 W.	
sec. 13, SW¼NE¼	40.00
35. T. 29 N., R. 112 W.	
sec. 9, SE¼SW¼, S½SW¼SE¼	60.00
36. T. 30 N., R. 112 W.	
sec. 7, Lots 2, 3	30.90
37. T. 30 N., R. 114 W.	
sec. 10, SE¼NW¼, SW¼	200.00
38. T. 30 N., R. 114 W.	
sec. 5, SW¼, W½SE¼, SE¼SE¼	280.00
sec. 8, N½N½, S½NE¼	240.00
Total	**520.00**
39. T. 31 N., R. 114 W.	
sec. 24, SW¼SE¼	40.00
40. T. 31 N., R. 113 W.	
sec. 19, Lot 3	42.51
41. T. 32 N., R. 114 W.	
sec. 22, S½S½	160.00
sec. 26, NW¼NW¼	40.00
sec. 27, N½	320.00
Total	**520.00**
42. T. 34 N., R. 112 W.	
sec. 15, W½NE¼, E½NW¼	160.00
43. T. 34 N., R. 113 W.	
sec. 5, S½SE¼	80.00
44. T. 34 N., R. 113 W.	
sec. 6, SE¼NE¼	40.00
45. T. 35 N., R. 113 W.	
sec. 18, Lot 4, SE¼SW¼	70.92
sec. 19, Lot 1, NE¼NW¼	71.02
Total	**141.94**

APPENDIX G-2 (Continued)

PROPOSED DISPOSAL, EXCHANGE, AND ACQUISITION PARCELS

Legal Description	Acres
Exchange Parcels	
1. T. 36 N., R. 112 W.	
sec. 3, Lot 2, SW¼NE¼, SW½, W½SE¼	318.02
2. T. 36 N., R. 112 W.	
sec. 5, S½	320.00
sec. 6, SE¼	160.00
sec. 7, Lots 3, 4, E½SW¼, E½	479.23
sec. 8, N½, N½S½	480.00
sec. 9, S½N½, S½	480.00
sec. 10, W½SW¼, SE¼SW¼, SW¼SE¼	160.00
sec. 15, NW¼NW¼	40.00
sec. 18, Lots 1, 2, 3, 4, E½W½	319.04
T. 36 N., R. 113 W.	
sec. 13, E½NE¼, SE¼	240.00
Total	**2,678.27**
3. T. 36 N., R. 112 W.	
sec. 19, N½NE¼	80.00
4. T. 36 N., R. 112 W.	
sec. 21, W½	320.00
5. T. 36 N., R. 112 W.	
sec. 14, W½NE¼, N½NW¼, SE¼	320.00
sec. 23, E½	320.00
Total	**640.00**
6. T. 36 N., R. 112 W.	
sec. 13, E½	320.00
T. 36 N., R. 111 W.	
sec. 18, Lots 1, 2, 3, 4	142.80
Total	**462.80**
7. T. 37 N., R. 110 W.	
sec. 33, NW¼SW¼	40.00
8. T. 36 N., R. 111 W.	
sec. 2, SE¼NE¼	40.00
9. T. 36 N., R. 111 W.	
sec. 1, W½SE¼	80.00
10. T. 36 N., R. 110 W.	
sec. 8, SE¼NW¼	40.00
11. T. 36 N., R. 110 W.	
sec. 8, NW¼NE¼	40.00
12. T. 36 N., R. 110 W.	
sec. 4, Lots 1, 2, 3, 4, S½N½, N½SW¼, SE¼SW¼, SE¼	540.36
sec. 5, Lot 1, SE¼NE¼, Lot 1, NE¼SE¼	106.79
sec. 9, N½NE¼, SW¼NE¼	120.00
Total	**767.15**
13. T. 35 N., R. 113 W.	
sec. 13, SW¼NW¼NW¼SW¼, N½SW¼NW¼SW¼, S½S½NW¼SW¼NE¼SE¼SW¼NW¼, S½S½	180.00
sec. 14, E½SW¼, SE¼	240.00
sec. 23, E½, E½NW¼, SW¼	560.00
sec. 24, N½	320.00
sec. 26, NE¼, N½NW¼, N½SE¼	320.00
sec. 27, N½NE¼, NE¼NW¼	120.00
Total	**1,740.00**

APPENDIX G-2 (Continued)

PROPOSED DISPOSAL, EXCHANGE, AND ACQUISITION PARCELS

Legal Description	Acres
14. T. 34 N., R. 112 W.	
sec. 11, SE¼SW¼	40.00
sec. 14, NW¼NE¼, N½NW¼	120.00
Total	**160.00**
15. T. 34 N., R. 108 W.	
sec. 7, NE¼, N½SE¼, SW¼SE¼	280.00
sec. 8, NW¼NW¼	40.00
Total	**320.00**
16. T. 34 N., R. 108 W.	
sec. 18, Lots 1, 2, 3, 4, E½NW¼, NE¼SW¼	278.62
Acquisition Parcels	
T. 32 N., R. 106 W.	
secs. 8 and 9	1,280.00
T. 33 N., R. 106 W.	200.00
sec. 18, NW¼SW¼	
sec. 19, SW¼	
T. 33 N., R. 107 W.	680.00
sec. 13, S½	
sec. 14, SE¼	
sec. 15, SE¼SE¼	
sec. 23, NE¼	

APPENDIX H

MITIGATION MEASURES

OFFSITE MITIGATION

Offsite mitigation would be considered on all larger surface-disturbing activities in big game crucial winter range and other sensitive wildlife habitat. The requirement for offsite mitigation would be applied on a case-by-case basis depending on the type and duration of the disturbance and the sensitivity of the area affected. Offsite mitigation would generally not be required for exploratory wells or other short-term disturbances, unless cumulative impacts become a concern. Plans for offsite mitigation would be required on a site-specific basis and could include prescribed burning, brush-beating, tree planting, and other methods designed to increase the productivity of wildlife habitat.

FIRE MITIGATION

Guidelines for buffer areas (an area in which fire cannot spread) have been developed to protect a developed facility from the impacts of fire. If the development is located in a grass community, a 15-foot buffer is required. If the development is located in a sagebrush community, a 25-foot buffer is required. If the development is located in a juniper/tall brush community (serviceberry, aspen, cottonwood, willow), a 50-foot buffer is required. If the development is located in a conifer community (lodgepole, spruce fir), a buffer area of 25 feet plus the height of the surrounding trees is required.

APPENDIX I

SOCIOECONOMIC CONDITIONS

This appendix provides background information utilized in the basic overview of current economic conditions described in Chapter 3. More detailed information is on file in the Rock Springs District Office and the Pinedale Resource Area office.

TABLE 47

RELATIVE SIGNIFICANCE OF ECONOMIC SECTORS WITHIN SUBLETTE/TETON COUNTIES TO AREA EMPLOYMENT AND PERSONAL INCOME[1] (1983)[2]

Subject	Employment (percent)	Income (percent)
Agriculture	6.89	2.01
Mining (Minerals)	2.88	3.46
Construction	10.02	7.09
Manufacturing	2.51	1.12
Transportation	3.39	5.57
Wholesale	1.59	1.31
Retail	19.50	10.13
Financial	2.71	2.50
Services	23.04	11.15
Government	13.96	13.08
Nonfarm (Other)	13.42	42.45[3]
Total	**100.00**	**100.00**

Source: Percentages are based upon data from 1) *Wyoming Population and Employment Forecast Report*, 7th Ed., August 1984, by Div. of Research and Statistics, Dept. of Admin. and Fiscal Control, State of Wyoming and 2) *Wyoming Income Report*, 7th Ed., August 1985, by Div. of Research and Statistics, Dept. of Admin. and Fiscal Control, State of Wyoming.

[1] Joint totals for Sublette and Teton counties for each sector, expressed as a percentage of total employment or total income. This is the total area (public and private) relationship, not just BLM's contribution to the economy.

[2] Latest reliable year.

[3] Includes dividends, interest, and rent (33.48%) and transfer payments (8.97%).

APPENDIX I

TABLE 48

TAXES AND BANK DEPOSITS
(millions of dollars)[1]

County	Total Taxes (1983)	Sales and Use Tax (FY 1983)	Bank Deposits (1983)
Fremont	36.07	9.55	255.91
Lincoln	18.03	4.34	106.40
Sublette	9.65	1.46	38.85
Teton	3.92	6.90	95.24
Sublette/Teton Total	**13.57**	**8.36**	**134.09**

Source: Wyoming Data Handbook 1983, 6th edition, Department of Administration and Fiscal Control, Division of Research and Statistics.

[1] Rounded to nearest two decimals.

TABLE 49

ANNUAL AVERAGE LABOR FORCE

Year	Wyoming	Fremont County	Lincoln County	Sublette County	Teton County	Sublette Teton Total
1973	142,985	10,735	3,408	1,741	3,701	5,442
1974	153,072	11,205	3,860	1,861	4,104	5,965
1975	165,869	12,074	4,005	2,016	4,506	6,522
1976	179,000	13,246	4,415	2,082	4,885	6,967
1977	193,000	14,652	4,818	2,183	5,400	7,583
1978	209,000	16,430	4,512	2,043	5,727	7,770
1979	223,000	17,306	4,886	2,162	6,269	8,431
1980	235,000	17,995	5,177	2,273	6,336	8,609
1981	250,000	17,892	5,643	2,368	6,794	9,162
1982	253,000	17,483	5,653	2,476	7,202	9,678
1983	262,000	19,168	6,100	2,589	8,041	10,630

Source: Wyoming Annual Planning Report, Fiscal Year 1985, Employment Security Commission of Wyoming, Research and Analysis Section, November 1984.

APPENDIX I

TABLE 50

ANNUAL AVERAGE EMPLOYMENT

Year	Wyoming	Fremont County	Lincoln County	Sublette County	Teton County	Sublette Teton Total
1973	138,207	10,258	3,219	1,692	3,503	5,195
1974	147,885	10,711	3,680	1,813	3,798	5,611
1975	158,888	11,381	3,749	1,950	4,114	6,064
1976	171,000	12,597	4,143	2,019	4,484	6,503
1977	186,000	14,023	4,505	2,123	4,974	7,097
1978	202,000	15,724	4,249	1,982	5,394	7,376
1979	217,000	16,752	4,650	2,111	5,984	8,095
1980	225,000	17,259	4,866	2,212	5,986	8,198
1981	239,000	16,926	5,322	2,314	6,394	8,708
1982	238,000	16,048	5,038	2,383	6,770	9,153
1983	240,000	17,102	5,337	2,392	7,465	9,857

Source: Wyoming Annual Planning Report, Fiscal Year 1985, Employment Security Commission of Wyoming, Research and Analysis Section, November 1984.

TABLE 51

ANNUAL AVERAGE UNEMPLOYMENT

Year	Wyoming	Fremont County	Lincoln County	Sublette County	Teton County	Sublette Teton Total
1973	4,778	476	190	49	198	247
1974	5,187	493	180	48	306	354
1975	6,981	693	256	66	392	458
1976	7,000	650	272	63	401	464
1977	7,000	629	313	60	426	486
1978	7,000	706	263	61	334	395
1979	6,000	554	235	51	285	336
1980	9,000	736	311	61	350	411
1981	10,000	966	322	54	401	455
1982	15,000	1,436	614	94	432	526
1983	22,000	2,066	763	197	576	773

Source: Wyoming Annual Planning Report, Fiscal Year 1985, Employment Security Commission of Wyoming, Research and Analysis Section, November 1984.

TABLE 52

ANNUAL AVERAGE UNEMPLOYMENT RATE

Year	Wyoming	Fremont County	Lincoln County	Sublette County	Teton County	Sublette Teton Total[1]
1973	3.3	4.4	5.6	2.8	5.4	4.5
1974	3.4	4.4	4.7	4.1	7.5	5.9
1975	4.2	5.7	6.4	3.3	8.7	7.0
1976	4.1	4.9	6.2	3.0	8.2	6.6
1977	3.6	4.3	6.5	2.7	7.9	6.4
1978	3.3	4.3	5.8	3.0	5.8	5.1
1979	2.8	3.2	4.8	2.4	4.5	4.0
1980	4.0	4.1	6.0	2.7	5.5	4.8
1981	4.1	5.4	5.7	2.3	5.9	5.0
1982	5.8	8.2	10.9	3.8	6.0	5.4
1983	8.4	10.8	12.5	7.6	7.2	7.3

Source: Wyoming Annual Planning Report, Fiscal Year 1985, Employment Security Commission of Wyoming, Research and Analysis Section, November 1984.

[1] Calculated using data from other tables. Unemployment totals divided by labor force totals.

APPENDIX J

IMPACTS AND RELATIONSHIPS COMMON TO ALL ALTERNATIVES

This appendix identifies general cause and effect actions that occur in the planning area that lead to impacts. The specific impacts are discussed in Chapter 4, Environmental Consequences.

AIR QUALITY

Should major sources of air pollutant emissions be constructed in the resource area, there is some likelihood that these emissions could reduce buffering capacities of the nearby high elevation watersheds of the Bridger, Popo Agie, and Fitzpatrick Wilderness areas.

SOILS

Under all alternatives, operators determine moisture (muddy) conditions, often after serious soil disturbance damage has occurred from truck-mounted operations. Minor soil compaction rates from vehicular traffic during dry periods compounds the problem and results in channelized ruts. Excessive compaction and ground cover loss result when soils are saturated and subjected to truck operations. Existing management practices allow incidents of vehicular damage and accelerated erosion due to compaction and ground cover loss to continue, especially during the spring and fall of the year.

Field observations indicate that reclamation of slopes from 15 percent to 30 percent is difficult and such slopes have not been consistently reclaimed.

If reclamation procedures are properly designed prior to disturbance, implementation of such procedures should yield more successful results in the future.

Irretrievable soil loss would be expected from some sites within this slope range, past the normal revegetation period (if reclamation is unsuccessful). The impacts from one well during a year (well-year impacts) and total soil erosion would increase. Failure of contractors to adhere to the standard stipulations compounds the problem and contributes to reclamation failure and increased time of exposure to erosive agents.

Use of native species in revegetation efforts often leaves a site exposed for several seasons until desired vegetation and density is achieved. Livestock and wildlife grazing may promote reclamation failure through utilization before stabilization. In areas with saline and alkaline soils, reclamation can be severely hampered due to poor germination and seedling establishment. All of the above limitations result in irretrievable loss of soil, dependent on time of exposure before successful reclamation.

Loss of streambank stability and direct sedimentation associated with mining would not be significant due to the small number of claims. Those areas stipulated for no surface occupancy (such as elk feedgrounds) would have no direct impacts on soils due to development constraints.

Use of constructed and designated equipment crossings in riparian areas would minimize logging impacts to streambank stability and avoid excessive bank erosion.

Due to the provision which allows the operator to determine muddy conditions, the potential for geophysical operators to cause rutting and excessive compaction would continue. This would be associated with decreases in long-term soil productivity in areas of disturbances.

Soil productivity on reclaimed areas (whether mineral or other disturbance) would be variable and dependent on soil characteristics, reclamation procedures, and treatment of topsoil. In areas with slopes greater than approximately 25 percent, reclamation that returns the disturbance to original contours would probably be poor, diminishing potential soil productivity through loss of topsoil. Grazing within newly reclaimed areas would tend to compact soil surfaces, altering germination potential and root growth.

WATERSHED

Generally, the same activities that affect soils also affect surface water. Soil disturbances that cause erosion also increase sediment delivery to surface water. Since the Pinedale Resource Area is in the Green River drainage, a minimum of 10 percent of all erosion occurring is assumed to be delivered to the Green River.

Increased sedimentation would degrade water quality and affect the whole food chain of aquatic life, from plants to invertebrates to fish. Sedimentation also destroys fish spawning habitat, eggs, and fry, as well as invertebrates which form the foundation of the aquatic food pyramid. Water temperatures would increase and dissolved oxygen concentrations be reduced, both of which would cause direct mortalities to fish and other aquatic life.

Some produced water discharges from oil and gas operations create additional aquatic habitat and make additional water available to irrigation. However, quality of discharged water may degrade the water quality of the receiving ephemeral or perennial stream enough to preclude its use for municipal drinking water, wildlife, recreation, and irrigation purposes. The quality of produced water discharges is required to meet or exceed the State of Wyoming Chapter VII Water Quality Regulations.

A potential impact on surface water could also come from oil spills. An oil or salt water spill entering a live water body could have a significant and long-lasting effect by making the water unsuitable for domestic livestock, wildlife, agricultural, and industrial uses. The impact from a spill, if unchecked, could extend for miles throughout many drainages.

Oil spills and soil related chemicals entering aquatic habitats coat stream bottoms and riparian zones and the chemicals contaminate the water. This could kill fish and wildlife directly, cause chronic sickness among animals, or cause wildlife to move out of the affected areas. Affected wildlife includes birds and aquatic invertebrates, fish, and other cold-blooded animals which inhabit or depend upon the riparian zone for survival. Warm-blooded mammals such as beaver muskrat, and mink are probably harmed through contact or ingestion. Oil spills also cause a loss of feeding and spawning habitat for fish.

Ground water contamination during drilling operations could occur if circulation of the drilling materials is lost or water-bearing formations are improperly cemented and cause interaquifer mixing. Ground water contamination could also occur due to blowouts and improper fracturing of hydrocarbon formations. Aquifers that have been contaminated in the past generally do not improve and would remain in the same condition.

Freshwater aquifers could be contaminated by surface-disturbing activities due to a lack of inventory that specifically identifies their characteristics.

Beaver activity in many drainages can become so intense that many of the aspen stands are removed for beaver dam construction. The results of such activity can effectively reduce the evapotransportation capabilities of many watersheds thereby increasing the magnitude of runoff events. This increase of runoff in many instances can be large enough to initiate channel incision and degradation.

VEGETATION

Like soil, vegetation would be affected by surface-disturbing activities. For example, a loss of plant cover would occur from construction of drill pads, roads, drainage crossings, pipelines, power lines, and other structures, as well as from forage consumption by livestock and wildlife, and loss of forage from fires.

An estimated 75 percent of the area disturbed by oil and gas related activities would be reclaimed and revegetated within 3 years after disturbance. Impacts to vegetation result from erosion, soil compaction, total removal, siltation, mechanical injury and disturbance of plants, and competition from species that invade disturbed sites.

Although sites would be reclaimed to as near original condition as possible, there would be some residual impacts especially on the more sensitive or fragile areas. For example, reclamation could result in a change in aspect. Even well established vegetation may not completely match the surrounding native plant community.

There would continue to be a loss of timber because of mortality under all alternatives. A portion of the timber would degenerate because of overmaturity and decadence, stagnation, insect attacks, and diseases (primarily parasitic mistletoe infestations). In unmanaged stands, old growth would continue to die and timber resource values would be lost. Where understory stands of regeneration are present, some would be infected with mistletoe and other diseases, resulting in a loss of some growth potential.

WILDLIFE HABITAT

Fish and wildlife populations are dependent upon the continuing presence and usability of crucial habitats in adequate quantity and quality for long-term maintenance. The most severe impacts resulting from surface disturbance and related activities have been long-term or permanent physical removal of habitat, long-term changes in habitat structure (i.e., vegetative composition), and creation of areas of reduced habitat usability. For fish and other aquatic species, degradation of water quality through sedimentation, spills, thermal pollution, etc., would create a substantial loss in habitat.

If these losses occurred in crucial habitats or in habitats that provide buffer zones for crucial habitats, significant long-term reduction in the populations of affected species would occur. In the process, the condition of adjacent, undisturbed crucial habitat could deteriorate as a result of excessive use by displaced animals. This could cause reduced overall carrying capacity, further depressing wildlife populations.

The environmental consequences on threatened and endangered species are unknown. However, a biological assessment which addresses the consequences on threatened or endangered species will be completed prior to the final EIS.

Since precise predictions cannot be made about where future surface disturbing activities will occur, precise predictions cannot be formulated as to the extent a particular big game herd, habitat site, sage grouse population, etc., will be affected by habitat losses. Nevertheless, some reasonable estimates can be made.

Impacts become more serious when they occur during certain critical periods of the animal's normal life cycle. Species most subject to impacts during critical periods are big game, sage grouse, and various raptors. The critical periods are winter and parturition seasons for big game and the breeding-nesting periods for sage grouse and raptors.

Winter is the most critical period for big game animals in this region. Animals are commonly under extreme environmental stress, enduring cold temperatures, deep snow, and forage that is limited in availability and nutritional quality, all of which contribute to a negative energy balance. Under these conditions, mortality is a normal occurrence. Mortality will fluctuate significantly from year to year, depending on the severity of the winter. A base population of females carrying young will survive, but often by late winter and early spring, the number surviving and their potential for successful parturition of healthy young animals is in a delicate balance. The imposition of additional, unnatural man-caused stress, such as that inherent in surface disturbing activities, on wintering big game herds can cause additional adverse effects on environmentally stressed big game herds on winter ranges.

In addition to the impacts from habitat loss, wildlife populations may be seriously affected by activities which subject animals to excessive stress, disturbance, and displacement. A variety of human activities involved in oil and gas industry, other industries, agricultural, and recreational pursuits, can create these impacts on wildlife. The oil and gas industry is a major contributor to these types of impacts because their activities are widespread throughout the resource area and they primarily work in rural areas that are often prime wildlife habitats. Also, their operations are often intermittent, with changing phases, making it more difficult for wildlife to adapt to the intrusions. The operations usually involve large mobile, noisy equipment such as drilling rigs, earth-moving equipment, trucks, ditchers, helicopters, snow removal equipment, over-snow vehicles, and explosives. Commonly, numerous transport vehicles and workers are involved. The major industry operations causing these types of impacts are geophysical exploration, wildcat drilling, access road development into remote sites, and transport pipeline construction and related facilities.

The oil and gas industry, primarily a rural land user, has been in the resource area for approximately 60 years. Exploration, production, and transportation of oil and gas resources continue to be widespread. Over time, the industry has brought in large numbers of people and new technology which have changed and expanded the realm of human and industrial activity occurring on these lands. As a result, physical and ecological changes have occurred that significantly affect plant and animal communities in many areas.

Oil and gas activities such as geophysical exploration, exploratory drilling, road building and upgrading, field development (including all types of facility and equipment construction), pipeline construction, maintenance operations, and abandonment operations could cause habitat losses. If current or increased levels of industrial activity continued for another 10 to 60 years in high-value habitat sites or important seasonal ranges, significant adverse impacts to fish and wildlife populations would occur.

Research on the effects of oil and gas activity on big game or any other wildlife is limited. Most studies that have been conducted lacked adequate controls and have been short-term baseline inventories (Seeman and Associates 1984). Studies documented big game populations displacement but precluded accurate interpretation of the effects on complex population dynamics. Hunted big game herds apparently respond more strongly to human disturbances than unhunted herds. All segments of all big game herds in the Pinedale Resource Area are subject to sport hunting.

In those herd units where concentrated parturition areas are documented, the disturbance and displacement of female elk with young could significantly reduce survival of young. The potential for mortality to young animals is high because of the vulnerability to predation, accidents, and disease (Schlegel 1978). The first few days after birth, the ability of young animals to travel is extremely restricted. Females displaced out of preferred habitats just before parturition may have young in unfavorable areas, reducing the chances of survival.

Success of breeding activity on sage grouse leks and the success of nesting and brood hatching throughout associated nesting habitat can be adversely affected by a variety of oil and gas operations. Disturbances that disrupt the courtship breeding rituals on sage grouse leks may disperse grouse from historical areas, or scatter mature hens and breeding males. This may result in fewer successful nesting attempts and a short-term population reduction. Prolonged, repeated, or exceptionally disturbing activities such as blasting in prime nesting areas, can cause abandonment of nests and reductions in local populations. Habitat losses from oil and gas development in nesting areas can cause more serious long-term effects on sage grouse populations than short-term disturbing activities. Minimizing losses in annual reproduction through the use of seasonal stipulations that reduce disturbance of breeding-nesting processes in intact habitats, may help offset some habitat related losses.

Human disturbances to raptors is detrimental dur of young when parents spend too much time displaced from the nest. Losses from predation and injury also occur when young raptors approaching the fledging stage are disturbed, causing them to leave the nest before they can fly. Where disturbing activities take place during the breeding-nesting season in areas of preferred raptor, nesting habitat local populations may be depressed.

Livestock grazing removes vegetation from rangelands that also support wildlife. Impacts to wildlife include direct competition for forage, reduction in cover for smaller species, increased erosion, and long-term changes in plant composition which can result in reduced wildlife production (i.e., poor condition riparian zones and sagebrush-grass types). Range improvements such as water developments, fences, and brush control associated with livestock management also impact wildlife distribution and habitat quality. These impacts can be adverse or positive, depending on the species and characteristics of the habitat affected.

Competition for vegetation occurs when livestock remove desirable grasses, forbs, and browse on crucial wildlife ranges until the availability of this vegetation is limited for the wildlife population requirements. This may occur while the livestock and wildlife are sharing the same range, or livestock may remove the vegetation prior to wildlife presence (i.e., cattle summering on elk winter range). Food preferences may overlap, or vegetation density may be reduced below threshold levels for security and thermal cover for species such as ground nesting birds and small mammals.

The long-term effects of changes in vegetative composition from livestock grazing and associated brush control practices are more profound than the annual removal of herbage. Selective grazing pressure and other environmental influences can favor certain plant species to the detriment of others, thus altering the composition of the plant community. Wildlife that need the plant species favored by these influences benefit. Wildlife that require the species that is reduced (or sometimes eliminated) suffer. For example, sage grouse and mule deer habitats have generally improved from selective livestock grazing on grass, which has increased sagebrush, and deteriorated from large scale herbicide spraying, which has removed sagebrush to favor grass.

Livestock grazing in riparian zones has had a more severe impact on more wildlife species due to general overuse of these crucial habitats. Big game, upland game, nongame, and fish are all affected by summer-long livestock use which allows no regrowth from riparian vegetation, tramples stream banks, degrades water quality, and eventually lowers the water table. Long-term changes in vegetative composition can include eventual conversion to dry, upland vegetation. Tree and shrub production can be limited due to livestock grazing seedlings and young plants before they reach maturity and provide vertical structure to the riparian plant community.

Timber harvest changes wildlife habitat by removing trees that serve different functions for different species. Timber sale design can determine the extent of impact and whether the impact is positive or adverse. Timing, size, and location of timber sales;, road construction; slash disposal; and reforestation techniques all impact wildlife habitat. Other land uses that occur in addition to timber harvest can have secondary impacts to the forestry program. New roads created during logging are used by hunters and other recreationists, if not closed following harvest. This creates additional disturbances to some wildlife. The intensive field development required for oil and gas production accentuates the importance of trees for security cover for certain species. Livestock use of clearcuts following timber harvest can negate the positive affect of increased forage production from canopy removal and retard reforestation efforts.

The impact of timber harvest for some species is direct and adverse (e.g., cutting a tree used by cavity nesters removes their home). For other species, the impact is less obvious and more difficult to quantify (e.g., cutting security cover for elk may also increase forage production). These instances must be evaluated individually to determine which factor is more limiting (security cover or forage).

Harvest techniques in the Pinedale Resource Area have evolved into a silviculturally sound basis, whereby reforestation through natural processes occurs. Older clearcuts (1950s and 1960s) were larger and reforestation efforts have been hampered by changes in microclimate and inadequate reservation of leave trees for seed sources. Using modern techniques, a clearcut stand of lodgepole pine can be expected to reestablish naturally to the present density of trees, 8 to 12 feet high within 20 years. Some of the clearcuts accomplished in the early 1960s are not fully reforested despite intensive artificial reforestation efforts. These older clearcuts have created an adverse, long-term impact to wildlife that depend on trees for habitat. Conversely, modern silvicultural techniques can, while providing an initial adverse impact, in the long-term maintain healthy, growing stand of trees for desirable wildlife habitat. Forestry practices that promote successional stages (i.e., mixed aspen and fir versus monotypic fir) are more desirable for wildlife. Forestry practices that concentrate management on one economically desirable tree species and attempt to control competition from other tree and browse species can reduce habitat quality by limiting stand diversity. Stand density, as well as diversity, is an important habitat feature for some wildlife. Dense old growth timber provides values not present in younger, open stands. The size of each block of timber is also important, especially for big game security cover in areas where human activity levels are high (refer to the Affected Environment section for further discussion under elk/timber relationships).

CULTURAL RESOURCES

Impacts to cultural resources occur through various circumstances. Land modification and erosion are common ways by which impacts to cultural resources can occur. Other agents resulting in damage to cultural resources include vandalism and illegal artifact collecting. Impacts to cultural resources are recognized to occur when one or more of the following happens:

> Destruction or alteration of all or part of a property.
>
> Isolation from or alteration of the property's surrounding environment.
>
> Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting.
>
> Neglect of a property resulting in its deterioration or destruction.
>
> Transfer of a property without adequate conditions or restrictions regarding preservation, maintenance, or use (36 CFR 800.3(b)).

To identify potential impacts to cultural resources, most but not all surface-disturbing activities permitted by the BLM are preceded by a Class III (100 percent) pedestrian inventory. The purpose of this inventory is to locate and evaluate all cultural resources in the impact area of a given project, and to assess the nature and magnitude of the proposed disturbance to that cultural property. Exception to the Class III inventory requirement may include projects located in previously disturbed areas or in areas that have already been covered by a Class III inventory; projects whose surface disturbance is minimal (e.g., some fencelines, coreholes, single pole powerlines); and projects planned in areas of demonstrable low potential for containing or preserving cultural resources. Once cultural resources are identified in a proposed project area, several strategies are available for reducing or eliminating the conflict. These steps are outlined in Actions Common to All Alternatives.

Impacts to cultural resources resulting from minerals management actions are minimized or eliminated by a primary strategy of avoidance of significant cultural resources by minerals project design. Should avoidance not prove feasible, mitigation measures (data recovery) are required as stipulations added to the permit. Impacts can occur if stipulations are not followed. Impacts caused by geological operations (seismic) include surface disturbance to fragile surficial cultural resources (historic trails, rock alignments), especially during wet, muddy conditions. Because Class III cultural resource inventory is not presently required of seismic activity, these impacts become unmitigated.

Vegetation manipulation by burning and mechanical treatment can impact cultural resources by increasing erosion and altering the physical remains. For historic structures, burning may destroy the flammable historic resource. This impact is eliminated or reduced by inventory prior to or subsequent to the manipulation. For a controlled burn in an area of low potential for historic structures, inventory usually occurs after the burn, when the greatest visibility of the surface is obtained. The burn may have an important impact because significant cultural resources, unknown until now because of lack of surface visibility, would be identified by post-burn inventory.

Because any surface disturbance created by wildlife management activities is preceded by Class III inventory and avoidance of significant cultural resources, generally no impact to cultural properties occurs.

Impacts to cultural resources caused by livestock grazing include minor physical disturbance to surficial cultural resources caused by trampling and erosion. Impacts resulting from surface-disturbing activities such as construction of stock ponds and fences is eliminated or reduced by the required in-house Class III inventory and avoidance strategy. Riparian areas and historic routes of passage are the most sensitive cultural resource areas subject to grazing impacts.

Timber sales are preceded by Class III inventory. Impacts to any identified significant cultural resources are reduced or eliminated by a strategy of avoidance. If avoidance is not feasible, either data recovery would occur, the site would be destroyed, or the sale would not occur.

An undesignated ORV situation in the planning area impacts cultural resources by increasing erosion and by artifact collection. ORV restrictions enhance cultural resource protection. Use of snowmachines has little, if any, impact upon cultural resources. Recreational impacts to cultural resources occur through illegal artifact collection, vandalism, and illegal excavation of cultural resources. Increased recreational use of the planning area may result in increased vandalism and artifact collecting. Diverse lands actions (sales, exchanges, mineral development, rights-of-way) can potentially cause serious impacts to cultural resources. These impacts are eliminated or reduced by performing the required Class III inventory, avoiding impact to significant cultural resources by project redesign, or by implementing data recovery when sites cannot be avoided.

Unavoidable Adverse Impacts

Unavoidable adverse impacts occur when the inventory preceding surface-disturbing activity fails to locate significant cultural resources, or when the significance of located cultural resources is not recognized. Illegal artifact collecting and vandalism result in unavoidable adverse impacts.

Short-Term Use Versus Long-Term Productivity

The primary avoidance strategy applied in cultural resource management stresses the long-term productivity of the resource. Short-term use of prehistoric and historic sites implies excavation by qualified persons. This use is inherently destructive in nature, but the scientific knowledge obtained by study of excavated materials offsets this loss and is productive in the long-term. Unauthorized removal of cultural resources, a short-term use, results in permanent loss because cultural resources are nonrenewable. Short-term use of the historic trails by interested parties may result in limited degradation of this resource in the long-term, because of alteration of the trails themselves or of their surrounding environment.

Irreversible and Irretrievable Commitment of Resources

Irreversible and irretrievable commitments of cultural resources are made when an effect occurs (36 CFR 800.3(b)). This effect is an adverse effect unless mitigated by the appropriate data recovery program. If a cultural resource is deemed significant, in part because of its environmental setting (as in the case of historic trails), and that environment is permanently altered, an irretrievable commitment results.

EFFECTS OF FIRE MANAGEMENT ON PLANT COMMUNITIES

Elevational range extends from about 7,000 feet to over 9,000 feet; this range of elevation is due to a series of north-south oriented ridges. Precipitation varies from about 12 to 16 inches. Soils are shallow on the ridges but deeper and more productive in the valleys. Major plant communities include sagebrush-grass, aspen, mountain shrub, willow, conifer, dwarf sagebrush, juniper, greasewood, meadow, and crested wheatgrass seedings.

Sagebrush-grass

Basin big sagebrush, Wyoming big sagebrush, and mountain big sagebrush grow alone or in combinations. Commonly, basin big sagebrush grows in deeper soils, mountain big sagebrush is at higher elevations, and Wyoming big sagebrush occupies soils with a root restricting layer or rock. All three subspecies of big sagebrush are easily killed by fire. Several needlegrasses (subalpine, Letterman, and needle and thread) may be present; all are initially reduced by fire but recover, and production may increase over preburn levels in 10 to 12 years. Recent evidence (Smith, et al. 1984) suggests that green needlegrass is not harmed by fire in Wyoming. Season of burning and plant size are probable links to needlegrass damage; June and July fires are most damaging, and large plants are harmed more than small plants. Bluebunch wheatgrass is less sensitive to fire; it normally recovers within 2 years and may double preburn production within five years. Idaho fescue is normally reduced by summer wildfires, especially on marginal sites, but recent evidence (Britton, et al. 1983) indicates that damage from fall prescribed burns may be less than indicated. Basin wildrye and blue wildrye are retarded by early summer fires but unharmed by fall prescribed burns; a fall, 1983 prescribed burn west of Kemmerer resulted in wildrye greater than six feet tall, increased seed stalk production, and no apparent reduction in basal area by July 1984.

Aspen

Aspen is a self-perpetuating climax plant on some sites but is probably seral to shade-tolerant conifers on most sites in the resource area. On seral sites, it is dependent on periodic fire or other disturbance to induce suckering and remove conifer competition. The general response to burning is an eruption of suckers (up to 30,000 or more per acre) for one to three years, after which suckering ceases and the clone begins to mature. On seral sites managed for wildlife habitat, topkilling with fire is necessary to stimulate accessible, high quality browse.

Mountain Shrub

A complex mountain shrub community exists on the resource area. Dominant shrubs include mountain snowberry, antelope bitterbrush, Utah serviceberry, true mountain mahogany, curlleaf mountain mahogany, and several species of currants. Understory species may include a rich mixture of forbs and thickspike wheatgrass, Idaho fescue, timothy, and mountain brome. Horsebrush, rabbitbrush, and broom snakeweed are minor components that usually increase after burning. These communities are temporarily (1 to 12 years) retrogressed by fire but the long-term (10 to 30 years) effect is increased forage and browse production. Soil erosion problems, even on slopes greater than 40 percent, have not been reported in Wyoming. Of the more palatable shrubs, only antelope bitterbrush is usually harmed; however, the Rock Creek prescribed burn west of Kemmerer (September 1983) resulted in about 66 percent of the bitterbrush resprouting on that site. Most mountain shrub communities need protection from fire only where they exist as limiting, crucial winter range. Even then, planning would allow portions to be burned while reserving the remainder for immediate wildlife needs.

Willow

Willow communities are usually riparian and not exposed to fire except during drought years.

Willow communities are extremely tolerant and most sprout vigorously. Burning willows is detrimental only in that thermal cover is removed along streams, ponds, and reservoirs. Burned willow communities are attractive to moose and may be overbrowsed if small areas are burned or the moose population is large. Domestic livestock also abuse willow communities; therefore, willows may need protection for one to three years after burning to allow recovery.

Conifer

The acreage classified as forestland includes lodgepole pine, Douglas-fir, limber pine, subalpine fir, and Englemann spruce; these trees may occur as relatively pure stands or as mixed stands. The true firs and limber pine are very sensitive to fire and are easily killed by cambial damage or crown scorch. Lodgepole becomes more susceptible to mountain pine beetle attack, windthrow, and wildfire within 100 years of stand establishment. Lodgepole is very susceptible to stand-replacing fires and is easily killed, but regenerates rapidly and prolifically. Douglas-fir is easily killed by fire from seeding through pole stages, but mature trees are extremely fire resistant. Englemann spruce and subalpine fir commonly occur together at elevations above 9,000 feet. They are both thin-barked and easily killed, but reestablish quickly on north-facing slopes. They may succeed initial establishment by aspen or Douglas-fir on south slopes.

Low Sagebrush

Common low sagebrush communities consist of relatively pure stands of black sagebrush, alkali sagebrush, or low sagebrush. Various annual and perennial forbs are present. These communities often do not support sufficient fine fuel or sagebrush cover to burn. If they do burn, all three sagebrush species are easily killed but grasses recover quickly. These sites usually are not productive and, therefore, are not good candidates for prescribed burning or rehabilitation after wildfires.

Juniper

Juniper communities often have a high frequency of lightning ignitions but lack of surface fuel prevents fire spread. Trees shorter than four feet are easily killed by surface fires if sufficient fuel is available at the base of the tree, but large trees are relatively fire resistant. Crown fires are possible when canopy cover exceeds 40 percent. Juniper does not sprout.

Greasewood

Localized saline areas support greasewood communities that may include fourwing saltbush and saltgrass. These communities are not of concern in fire protection and rarely produce cost-effective prescribed burns. Some decadent communities may benefit from fire, fire plus chemical sprout control, or fire plus reseeding. Seeding is risky, however, because few grass species are productive on these sites. Short-term removal may be preferred over unavailability of understory.

Meadows

Wet meadows are often dominated by sedges and rushes, and may have inclusions of willow or aspen. Dry meadows often contain tufted hairgrass and several bluegrass species. There may be a benefit from burning wet meadows in western Wyoming although most are relatively fire resistant. Wet meadows may burn during dry years, and the temporary effect is a shift away from sedges and rushes toward grasses and forbs. Unless the water table is altered, wet meadows return to preburn conditions in fire to seven years. Dry meadows may be invaded by various woody species including silver sagebrush. These dry meadows benefit from periodic burning because woody plant encroachment is retarded. Dry meadows may be seral to shrublands and require periodic maintenance fires. Threadleaf sedge, which may occur in some meadows, is sensitive to fire, may require 12 to 15 years to recover, and can be eliminated by repeated burning in shorter intervals.

Crested Wheatgrass Seedings

Because of Wyoming's favorable rainfall distribution pattern, areas that receive 12 inches or more of precipitation annually are rarely dry enough for crested wheatgrass to burn. Further, seedings that produce less than 600 pounds per acre are difficult to burn due to high silica content in crested wheatgrass stems and horizontal fuel discontinuity. Seedings may burn during late fall, however. On seedings that can be burned, fire is an excellent method to reduce wolf plants and retard sagebrush re-invasion.

SUMMARY

Most plant communities in the resource area respond positively to burning. Sites in good to excellent range condition usually recover naturally to preburn conditions in one to three years, with reduced cover of non-sprouting shrubs. Grazing and other uses can be resumed in 2 or 3 years. Many opportunities exist to take advantage of this response with spring and fall prescribed burns and with prescribed fires (unplanned ignitions).

GLOSSARY

ALLOTMENT is an area of land designated and managed for grazing of livestock.

ALLOTMENT MANAGEMENT PLAN (AMP) is a document program which applies to livestock grazing on the public lands, prepared in consultation, cooperation, and coordination with the permittee(s), lessee(s), or other involved affected interests.

ALLOWABLE CUT is the amount of timber considered available for cutting during a specified or planned period of operation (year, decade, etc.). An allowable cut us based on timber conditions and multiple use limitations.

ANIMAL UNIT MONTH (AUM) is the amount of forage necessary for the sustenance of one cow or its equivalent for a period of one month.

ARTIFICIAL REFORESTATION is reforestation of a cutover or burned area by planting seedlings or by direct seeding of an area by hand or from the air.

BOARD FOOT is a measurement of the volume of a tree which is based on a block of wood one foot on each side and one inch thick.

CLEARCUT is a harvest cutting of a stand of trees in which all trees are removed from a specified area.

COMMERCIAL CONIFER is a conifer species (evergreen trees) capable of sustaining lumber and other forest product production and for which there is a commercial or economical demand.

COMMERCIAL THINNING is a silvicultural practice to remove a specified number of trees from a stand of trees which is growing too closely together. This operation, as in a precommercial thinning, usually leaves a specified number of trees on an area at a specified spacing interval. This is to transfer the growth potential of the land onto a few of the best trees. This operation is usually conducted in a stand of larger trees, and a value is placed on the trees to be removed. Normally, the contractor doing the work will remove the products from the trees removed and sell them.

CONFINEMENT implies minimal response to fires in areas where hazards to firefighters and suppression costs are high and where fire results in acceptable effects on resource values.

CONTAINMENT is the taking of aggressive action by forces sufficient to contain the fire under prevailing conditions to an area logical to local terrain features and barriers. If a fire escapes containment during this period, any continuing suppression action will be planned to minimize total resource losses, suppression and rehabilitation costs, and environmental damage.

CONTEXTURAL is the interrelated conditions or arrangement of parts in a structure or environmental unit, such as a fossil assemblage.

CONTROL is the taking of immediate, aggressive suppression action on fires. Human and equipment resources are committed at an increasing rate until the objective of fully protecting the threatened area is met. Areas designated for this level of response are considered of high value or high risk.

CONVENTIONAL LOGGING METHODS OR SYSTEMS is logging an area utilizing presently standardized equipment normally used in that specific area. In this location, it is meant as using rubber-tired skidders or tracked dozers to haul logs to a central location.

CUBIC FOOT is a measurement of the volume of a tree which is based on a block of wood one foot high, one foot wide, and one foot deep.

DBH (Diameter Breast High) is a measurement of the diameter of a tree at a point 4½ feet above ground level on the uphill side of a tree.

GRAZING PREFERENCE means the total number of animal unit months of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee.

HIDING COVER FOR ELK is vegetation capable of hiding 90 percent of a standing elk from the view of a human at a distance equal to or less than 200 feet; generally, any vegetation used by elk for security or escape from danger.

IGNITION, PLANNED The intentional setting of a fire for management design with resource benefit.

IGNITION, UNPLANNED The incidental setting of fire by uncontrolled sources such as lightning, visitor negligence, or arson.

MHOS is a measure of conductance measured in micromhos per centimeter. Its opposite is ohms, the measure of resistivity.

MBF (one thousand board feet) is a timber volume designation.

MMBF (one million board feet) is a timber volume designation.

MONITORING is the orderly collection of data to evaluate: 1) effects of management action; and 2) effectiveness of actions in meeting management objectives.

NATURAL REFORESTATION is reforestation of a cutover or burned area by natural means, i.e., from seeds blown in from adjacent trees, from dormant seeds in the ground, or from seeds dropped out of cones on the ground after logging.

NONUSE is grazing preference that permittees are not using. Permittees must apply to not use their grazing preference. If the application is approved, it is termed "nonuse."

NO SURFACE DISTURBANCE refers to a limitation(s) that may be required in order to protect particular values. These limitations mainly consist of time and distance restrictions and do not preclude actual disturbance.

NO SURFACE OCCUPANCY areas are basically unsuitable for surface-disturbing activities. Actions that do not cause surface disturbance and(or) are determined not to affect the resources involved, may be allowed.

PALEONTOLOGICAL SENSITIVITY LEVELS include five levels:

Critical (Class I) - Any locality from which holotype or critical reference material (e.g., paratype, lectotype, etc.) has been collected. Any type geologic reference section which is critical for future reference.

GLOSSARY

Significant (Class II) - Any locality which contains rare, exceptionally well-preserved or critical materials for stratigraphic or paleoenvironmental interpretation.

Important (Class III) - Any locality which has produced plentiful, relatively common in the locality and elsewhere, fossil materials which are useful for stratigraphic and variability studies.

Insignificant (Class IV) - Any locality which produces poorly preserved, common elsewhere or stratigraphically unimportant material.

Unimportant (Class V) - Any locality which has been intensively surveyed and determined to be of minimal scientific interest. This can include any outcrop of geological formations described as unfossiliferous in technical journals or publications.

PARTIAL CUTTING is a silvicultural system of logging in which only a portion of the trees on a given area are removed. Depending on the specific system, the remaining trees are usually left in a fairly constant spacing pattern.

POLE STAND is an area consisting of trees the average size of which is between 5.0 and 8.9 inches in diameter.

PRECOMMERCIAL THINNING is a silvicultural practice to remove a specified number of trees from a stand of young trees. This can be done by mechanical means (cutting with axe or saw or pushing over with tractors), or by chemical means (injecting unwanted trees with a poison), and usually leaves a specified number of trees per acre at a specified interval. This spacing interval is generally based on the age and size of the trees in the stand and is undertaken to transfer the growth potential of the land onto a few of the best trees on the site. In a precommercial thinning, no value is placed on the trees to be removed.

PRESCRIBED FIRE implies that fire effects are favorable to the resource managed under a specified set of environmental criteria (prescriptions).

PRESCRIBED BURNING implies a planned ignition intended to enhance the resource that is targeted for treatment (see Vegetation Treatment section for further details). Standard project policy and procedures will guide these actions.

REGENERATION is tree seedlings which are established on an area, either naturally or artificially, following some event in the life of a mature stand, either a harvest cut, a fire, or some kind of disaster.

ROTATION AGE is the period of years required to establish and grow timber crops to a specified condition of maturity.

SAPLING STAND is a stand of trees the average diameter of which is between 1.0 and 4.9 inches.

SAWTIMBER STAND is an area consisting of trees the average size of which is above 9 inches in diameter, 4.5 feet above ground level.

SITE QUALITY is the potential of a particular area to grow trees. This is based on many variables, including soil depth and quality, aspect (terrain configuration in relation to the sun), nutrient and water availability, etc.

SLASH (Logging Residue) is the tops, limbs, and other unusable portions of trees left on an area after logging. In some logging operations, this slash may contain firewood, poles, or other products usable by people other than the primary logger.

STAGE II INTENSIVE FOREST INVENTORY is a system devised by the U.S. Forest Service to intensively sample timber stands to calculate an estimate of the volume in a specified area of timberland. Intensity of sampling can vary. The intensity is usually one sample measurement point every 10 acres, depending on the total size of the area to be inventoried, and other criteria.

TIMBER STAND is a specified area of similar type or sized trees.

TOPSOIL is the fraction of a soil that contains the majority of soil fertility, microbiological populations, and a specifically localized seed source for that area.

WILDERNESS SUPPRESSION implies restraint in fire suppression methods that occur in the designated areas. In these areas, the fire management objective is to manage fire in ways that will cause the least degradation to wilderness values. The areas may be managed as prescribed fire areas.

WOODLANDS are lands producing trees that are typically utilized as nonsawtimber products and sold in units other than board feet. Woodlands are those forest lands which are not included in the commercial forest land allowable cut base.

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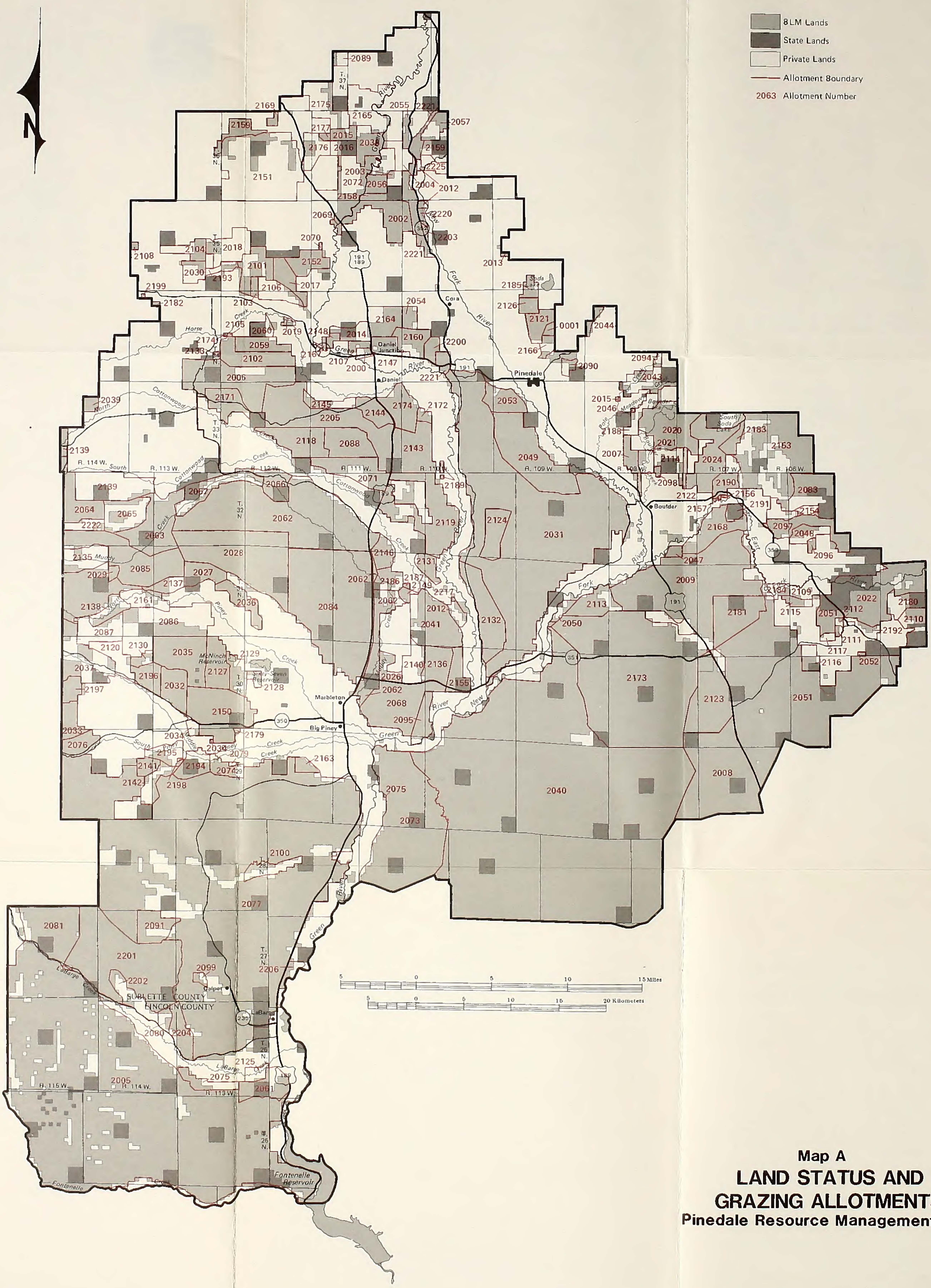

Map A
LAND STATUS AND GRAZING ALLOTMENTS
Pinedale Resource Management Plan

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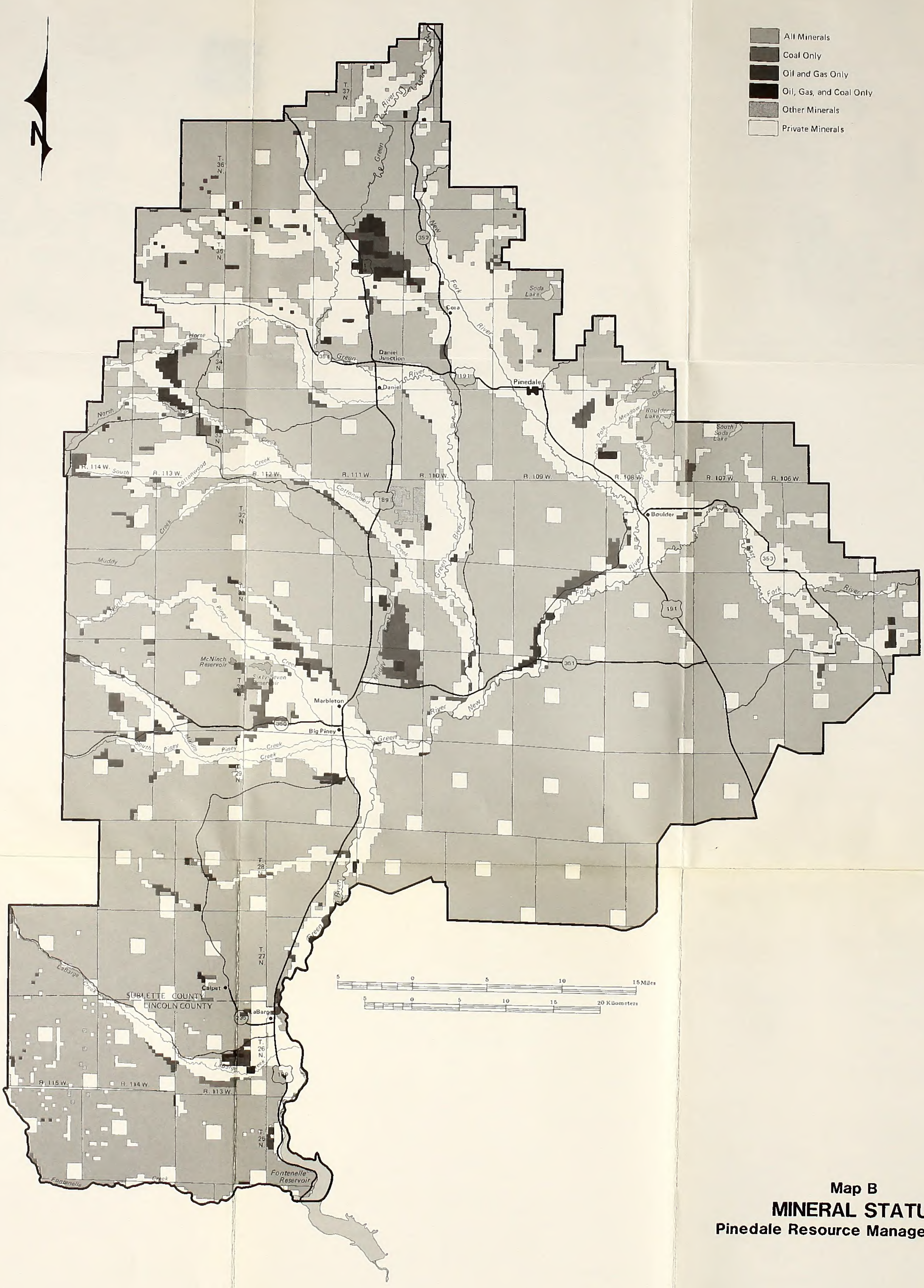
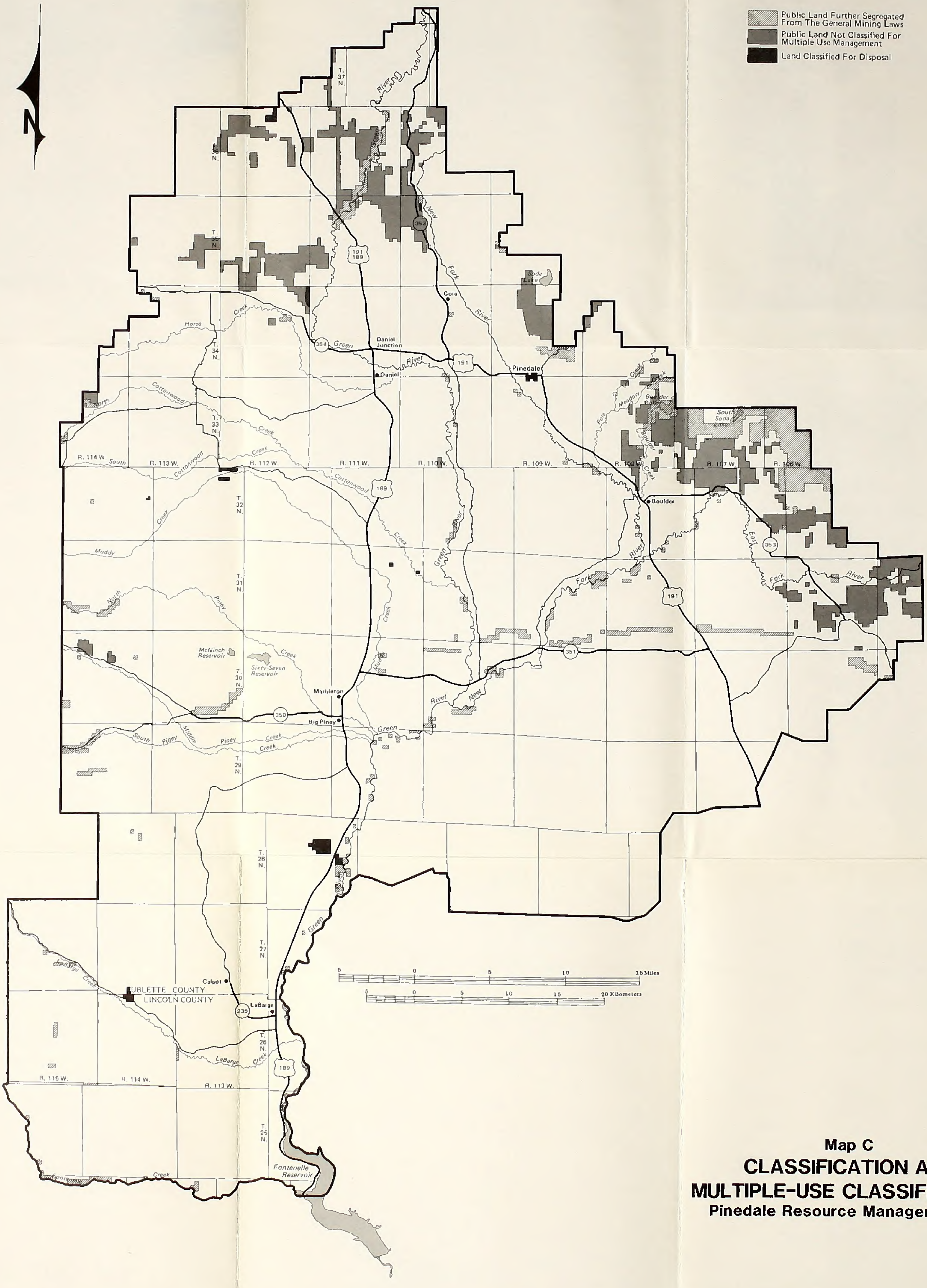
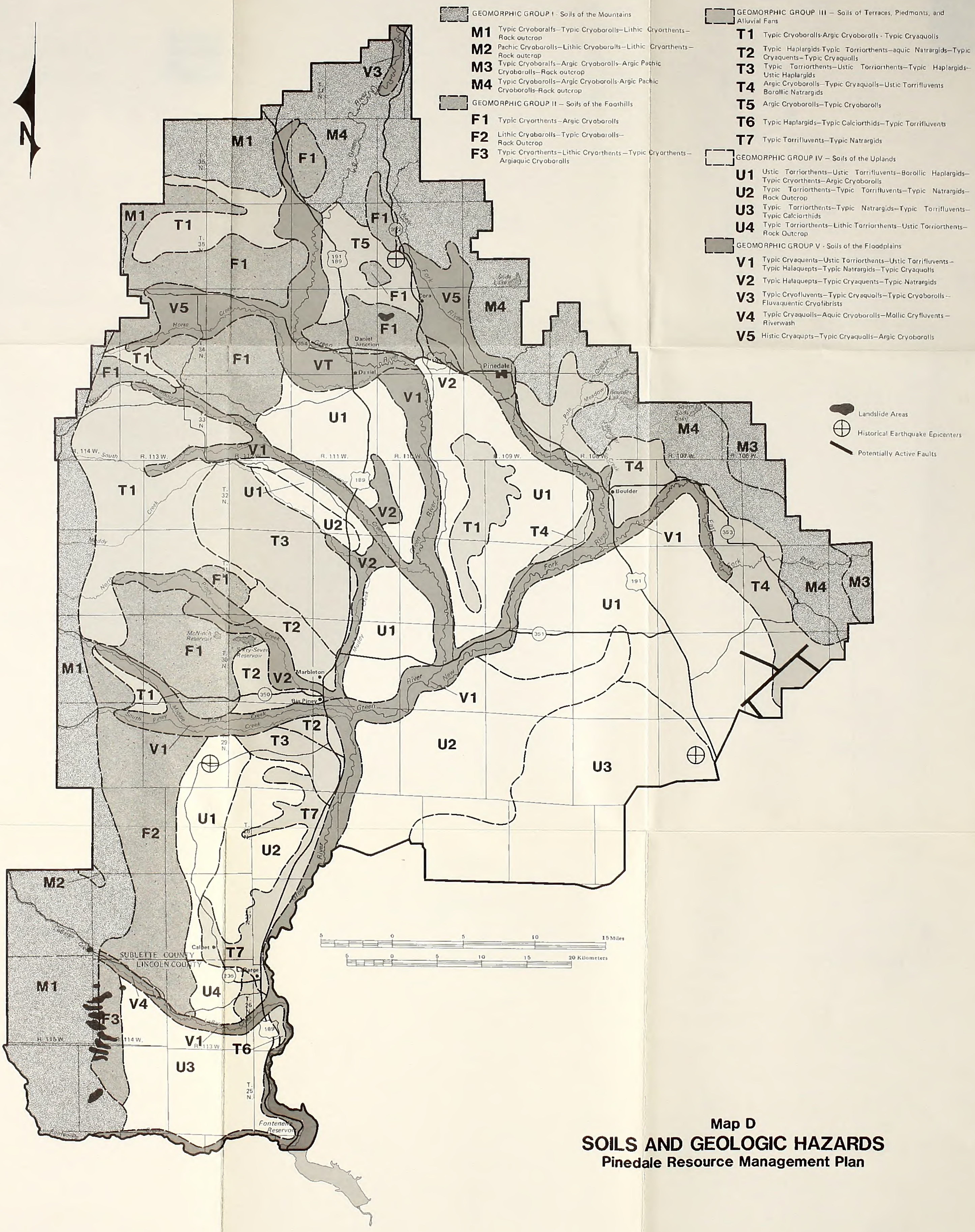


Map B
MINERAL STATUS
Pinedale Resource Management Plan



Map C
CLASSIFICATION AND MULTIPLE-USE CLASSIFICATIONS
Pinedale Resource Management Plan

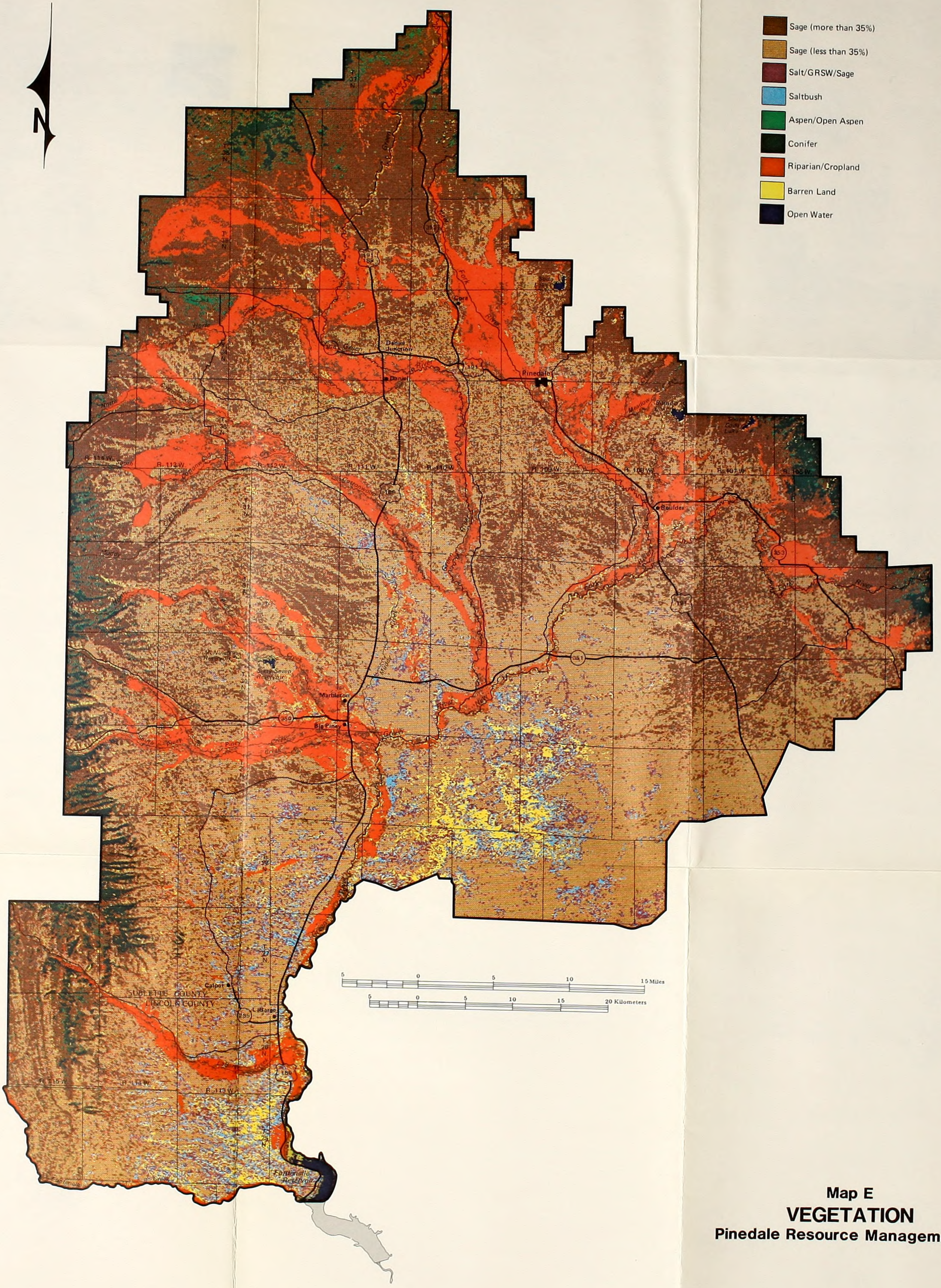


▨	GEOMORPHIC GROUP I - Soils of the Mountains
M1	Typic Cryoboralfs—Typic Cryoborolls—Lithic Cryorthents—Rock outcrop
M2	Pachic Cryoborolls—Lithic Cryoborolls—Lithic Cryorthents—Rock outcrop
M3	Typic Cryoboralfs—Argic Cryoborolls—Argic Pachic Cryoborolls—Rock outcrop
M4	Typic Cryoborolls—Argic Cryoborolls-Argic Pachic Cryoborolls—Rock outcrop
▨	GEOMORPHIC GROUP II — Soils of the Foothills
F1	Typic Cryorthents—Argic Cryoborolls
F2	Lithic Cryoborolls—Typic Cryoborolls—Rock Outcrop
F3	Typic Cryorthents—Lithic Cryorthents—Typic Cryorthents—Argiaquic Cryoborolls
▨	GEOMORPHIC GROUP III — Soils of Terraces, Piedmonts, and Alluvial Fans
T1	Typic Cryoborolls-Argic Cryoborolls - Typic Cryaquolls
T2	Typic Haplargids-Typic Torriorthents—aquic Natrargids—Typic Cryaquents—Typic Cryaquolls
T3	Typic Torriorthents—Ustic Torriorthents—Typic Haplargids—Ustic Haplargids
T4	Argic Cryoborolls—Typic Cryaquolls—Ustic Torrifluvents Borollic Natrargids
T5	Argic Cryoborolls—Typic Cryoborolls
T6	Typic Haplargids—Typic Calciorthids—Typic Torrifluvents
T7	Typic Torrifluvents—Typic Natrargids
☐	GEOMORPHIC GROUP IV — Soils of the Uplands
U1	Ustic Torriorthents—Ustic Torrifluvents—Borollic Haplargids—Typic Cryorthents—Argic Cryoborolls
U2	Typic Torriorthents—Typic Torrifluvents—Typic Natrargids—Rock Outcrop
U3	Typic Torriorthents—Typic Natrargids—Typic Torrifluvents—Typic Calciorthids
U4	Typic Torriorthents—Lithic Torriorthents—Ustic Torriorthents—Rock Outcrop
▨	GEOMORPHIC GROUP V - Soils of the Floodplains
V1	Typic Cryaquents—Ustic Torriorthents—Ustic Torrifluvents—Typic Halaquepts—Typic Natrargids—Typic Cryaquolls
V2	Typic Halaquepts—Typic Cryaquents—Typic Natrargids
V3	Typic Cryofluvents—Typic Cryaquolls—Typic Cryoborolls—Fluvaquentic Cryofibrists
V4	Typic Cryaquolls—Aquic Cryoborolls—Mollic Cryfluvents—Riverwash
V5	Histic Cryaqupts—Typic Cryaquolls—Argic Cryoborolls

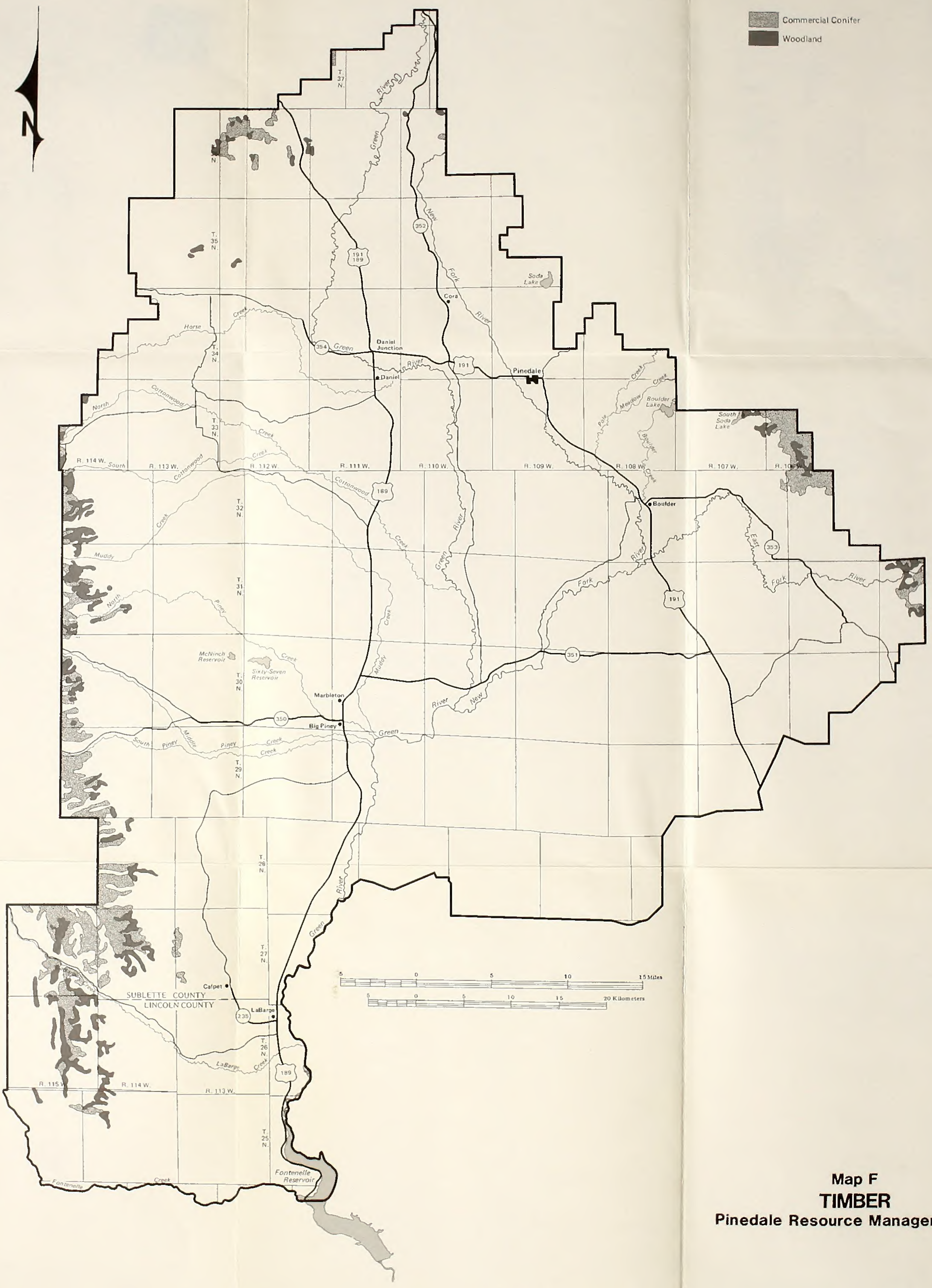
Map D

SOILS AND GEOLOGIC HAZARDS

Pinedale Resource Management Plan



Map E
VEGETATION
Pinedale Resource Management Plan



Map F

TIMBER

Pinedale Resource Management Plan

U.S. Department of Interior
Bureau of Land Management
Pinedale Resource Area, Wyoming

1987